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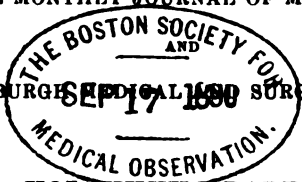


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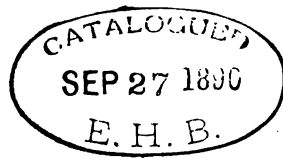
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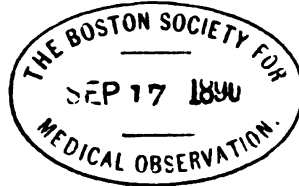
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1877



Part First.

ORIGINAL COMMUNICATIONS.

I.—THE SYMPTOMS AND SEQUELÆ OF THE SENILE HEART.

By GEORGE W. BALFOUR, M.D., LL.D., Physician to Chalmers's Hospital.

Nascentes morimur, finisque ab origine pendet.

—Manilius, *Astronomicon*. iv. 18.

(Continued from page 217.)

FOR long the beat of the heart has been supposed by physiologists to be caused by the rhythmic motor impulses proceeding from the cells of the cardiac ganglia to the passive muscular fibres which form that organ. Now there is a decided reversion to the opinion of John Reid, that "in all probability the contractility of the heart depends upon a property possessed by the muscular fibre itself without any necessary intervention of nerves."¹ This property modern physiologists explain to be the power of spontaneous movement possessed by all undifferentiated primordial protoplasm, and retained by the cardiac muscular fibre, because, though striated, its differentiation is still incomplete, as shown by its cellular constitution and its protoplasmic features, including the obscurity of its striation.² This statement of fact is obviously unsatisfactory as an

¹ Todd's *Cyclopædia of Anatomy and Physiology*, article "Heart," vol. ii. p. 613.

² Foster's *Text-book of Physiology*, 5th edition, 1888, p. 288, *et antea*. Brown-Sequard mentions, "The fact so well established by my friend Professor Lebert, that in the embryo the heart beats when it is merely composed of cells, and when the nervous system has not yet appeared"—*Experimental Researches*, New York, 1853, p. 118. We find also Funke saying, "R. Wagner den Nerven eine wesentliche Rolle bei dem Zustandekommen der Herzbewegung in ihrem normal Typus und Rhythmus abgesprochen hat, indem er sich auf die thatsache stützte, dass das Herz der Embryo sich Rhythmisch contrahirt, bevor durch das microscop eine spur von Nerven-elementen in ihm nachzuweisen ist und bevor die zellen desselben zu quergestreiften muskelfasern entwickelt sind."—*Lehrbuch der Physiologie*, 6^{te} Auflage, Leipzig, 1879, vol. ii., Abtheilung I. S. 620. A precisely similar observation has been made in regard to the heart of the adult snail by Dr M. Foster and Mr A. G. Dew-Smith, *vide Proc. Royal Soc.*, vol. xxiii., No. 160, p. 313. Portions of cardiac muscular tissue, which certainly contain no ganglia, and may be taken from various animals, can also be induced to execute rhythmic beats which have all the appearance of being spontaneous. These and other considerations connected with the character of the contraction of the cardiac muscular fibre have led physiologists to regard the movements of the heart as spontaneous in character, a step beyond Haller, whose *vis insita* was merely a power of recognising stimuli.

explanation, and leaves the cause of the heart's movements, and more especially their rhythmic character, as much of a mystery as ever.¹

But though the rhythmic movements of the heart are neither initiated nor maintained by the nervous system, they are capable of being both modified and arrested through its agency. For the nervous system is supplied for the purpose of co-ordinating the action of the heart with the wants of the system. Without this co-ordination the heart would beat with the same unvarying monotony from the cradle to the grave,—neither exercise nor fever could quicken the pulse, nor could the tenderest emotion suffuse the cheek, the poetry of life would be lost, and life itself would soon follow, as no provision could be made for the requirements of the organs in their varying states of activity and quiescence. Unfortunately the penalty we pay for our present state of being is, that the very springs of life and of enjoyment may incidentally become the cause of much suffering, nay, even of death itself. The same agency by which a warm and comforting potion makes our heart beat faster, and sends a pleasant glow through our frame on some bitter day, cost Alexander the Great more men from drinking the icy waters of the Oxus than he lost in all the many battles of his Eastern campaign.

Scattered throughout the substance of the heart, especially at the junction of the *sinus venosus* with the auricle, and in the auriculo-ventricular sulcus, there are many nervous ganglia which were formerly regarded as the source from which emanated the motor energy of the heart. Now that this idea has been given up, there is no satisfactory explanation of the function of these ganglia to be given; we cannot even with See regard them as reservoirs of energy,² for the energy dwells in the fibres of the heart, and is only regulated and modified through the agency of the nervous system. Over the surface of the heart, and particularly at its base, there is a network of nervous filaments connected at one extremity with these intra-cardiac ganglia, and at the other separating into three distinct nervous cords, each of which plays a special part in regulating the cardiac movements. One of these nerves comes from the sympathetic, and two from the cerebro-spinal system. From the sympathetic system, mainly through the last cervical and first dorsal ganglion, there passes to the heart an accelerating influence, which, according to Von Bezold, not only increases the rate, but also the force of the pulsations.³ The correctness of this

¹ "Welche Vorgänge im intacten Herzen und Körper stattfinden, um die rhythmischen Bewegungen des Herzens während des ganzen Lebens zu erhalten, lässt sich aus den bisherigen Resultaten der Untersuchung nicht construiren."—Hermann, *Handbuch der Physiologie*, iv. Band, Erster Theil, Leipzig, 1880, S. 374.

² *Du diagnostic et du traitement des maladies du cœur*. Par Germain See. Paris, 1879, p. 318.

³ *Untersuchungen ueber die Innervation des Herzens*. Von Albert v. Bezold. Leipzig, 1863, Erste abtheilung, S. 162.

observation is now fully acknowledged, and these accelerators have now also received the name of augmentors.

From the *vagus* nerve to the heart there come two branches—the one the superior cardiac nerve, the other the inferior cardiac nerve; both are, however, separate nerves, and have distinct origins. The superior cardiac nerve is an afferent nerve, and conveys from the heart a controlling influence to the vaso-motor centres in the medulla oblongata which regulates the movements of the arterioles. This nerve is supposed to come into action when the heart is oppressed by a rise in the intra-arterial blood-pressure; it is then supposed to inhibit the regulating centres, to dilate the arterioles, and thus to relieve the heart. It is also supposed conversely to regulate the heart-beat, by sending down from the medullary centre impulses which slacken and tone down the heart-beat when the blood-pressure gets too high.¹ There may be, perhaps, a little difficulty in understanding this to-and-fro action, but for that physiologists are responsible. The inferior cardiac nerve, though coming also from the *vagus* bundle, is really more closely connected with the spinal accessory than with the *vagus* proper, and has a distinct root of its own. From a physician's point of view, this inferior cardiac nerve seems in many ways to be the most important of all the cardiac nerves. So far, at least, as with our imperfect knowledge of cardiac innervation we dare speak of priority or importance in connexion with any of these nerves. It is the inhibitory nerve of the heart; through it the central nervous system regulates the cardiac movements by keeping a constant check on them. Von Bezold² believed that it was in constant action, and that this constant action supplied that tonicity to the heart which is one great safeguard against dilatation. When excited, this nerve may arrest the heart in diastole; or, when the inhibitory excitement is not powerful enough for this, it may produce one of two effects,—it may either slow the heart's action, or it may diminish the force of the heart's contractions. In the former case it is supposed that the inhibitory influence has fallen upon some part, as the sinus, which possesses a higher rhythmic potentiality, and in the latter that the inhibition has fallen upon some part possessing a lower or less active rhythmic potentiality.

Moreover, inhibitory impulses too slight to produce any of these remarkable effects may yet suffice to diminish the natural tonicity of the heart.³

Tonicity, or tonic contraction of a muscle, may vary from time to time—that is, a muscle is at one time flabbier than at another. But flabbiness of a hollow muscle like the heart means increased length of the muscular fibre and increased size of the cavity. Loss of tone, therefore, if it does not actually mean dilatation, certainly

¹ Foster, *op. cit.*, p. 351.

² *Op. cit.*, S. 84.

³ Foster, *op. cit.* "We have, moreover, evidence that inhibitory impulses diminish and augmenting impulses increase this tonic contraction," p. 302.

means a powerful predisposition to dilatation, and an inability to resist dilating influences. Inhibitory influences, too slight to produce any immediate or definite action on the heart, may thus predispose and conduce to its ultimate dilatation. These inhibitory influences pass from every quarter along the afferent nerves to the cardio-inhibitory centre in the medulla, and from it through the vagus to the heart. We can thus readily understand how a long continuance of petty inhibitions, be they mental worries or physical derangements, may seriously affect cardiac tonicity, especially at a period of life when normal alterations in structure tend to accentuate the effect of these petty inhibitions.

Accelerating and augmenting influences may also pass through the cardio-motor centre and the sympathetic nervous system to the heart from all parts of the system, so that emotion and even physical derangements may produce palpitation, intermission, tachycardia, bradycardia, and irregular action, according to laws with which as yet we are most imperfectly acquainted, but which certainly seem to have some relation to the preceding condition of the heart, both as to nutrition and excitement. These two sets of nerves, the cerebro-spinal and sympathetic, antagonize one another, and between them are accountable for all the vagaries of the heart,¹ though the state of the blood and of the cardiac muscle itself also exercise important influences in modifying both the rate and force of the heart-beat, besides laying open the heart in many ways to nervous interference of various kinds.

Many of the varieties of pulse are but pathological curiosities, and though they most frequently occur after middle life, they cannot be regarded as specially associated with age. The *pulsus bigeminus* is one of these vagaries; in it we have twin beats, with an intervening longer pause between each pair. This is a form of pulse seldom seen except towards the close of some serious heart affection, and is specially apt to occur where digitalis has been freely used. In the still more unusual *pulsus alternans*, the right and left hearts beat alternately with greater and less vigour, so that we have an alternating carotid and jugular pulse, and to this we have sometimes superadded a bigeminal rhythm of the heart-beat.²

I have already stated that in one case *intermission* appeared to have been the earliest, as it was certainly the most persistent symptom of cardiac debility. Pathologically speaking, this phenomenon is the most easily explained of all cardiac abnormalities of movement. If we lay bare a frog's heart, cut its vagus across, and send an electric shock through the part connected with the heart,

¹ Vide Bowditch, "Ueber die Interferenz des retardirenden und beschleunigenden Herznerven."—*Ludwig's Arbeiten*, 1873.

² Vide Balfour, *op. cit.*, 2nd ed., p. 254; and Roy, "On two Heart Cases which presented a rare form of Irregularity," *Ed. Med. Journ.*, Jan. 1878, p. 594.

this organ is at once arrested in diastole. So in the human heart any influence which is strong enough, and is sent from any quarter through the cardio-inhibitory centre down the vagus nerve to the heart, inhibits its action and causes an intermission. Previous to birth an intermittent or irregular heart is, I believe, unknown; but no sooner is a child born than its heart becomes exposed to inhibiting influences. In youth, as a rule, intermission is of little consequence; it indicates a certain amount of cardiac debility, and it certainly requires a certain amount of care, watching, and treatment to prevent further mischief. In youth the heart is always growing stronger, but to content ourselves with saying that such a condition will be outgrown is often to lay the foundation for bitter disappointment in after life, which a little timeous attention might have prevented. After middle life intermission is a more serious symptom, not in itself, but as an indication of debility, which, if neglected, will almost certainly lead to serious mischief. Youth may, and sometimes does, fight it out without much care, but age cannot do so, though it is wonderful how little disturbance is sometimes occasioned by persistent intermission.

A normal heart may have intermission forced upon it by the shock of a shipwreck or a railway accident, and in time this irregularity of rhythm will pass away. In one such case known to myself, the intermission was at first every second beat, in six months' time there was only one intermission in twenty beats, and I have no doubt the irregularity ultimately completely disappeared. With a more powerful exciting cause, or a more feeble organism, the irregularity would doubtless be more persistent. Where intermissions arise from persistent or repeatedly recurring emotions of a disagreeable character,—such as the perpetual worries of untoward family affairs, or the harassments of business,—though they may commence as simple and occasional intermissions, yet, before long, they diminish the tonicity of the heart, tend to dilate it, and give rise to irregularities of a more serious character. Intermissions from gastric disturbances seldom last long, but are more apt to recur, often from very trifling causes. A cup of tea, left standing on the leaves for a quarter of an hour, I have known to stop a weak, and therefore sensitive, heart every second beat for nearly twenty-four hours. On the other hand, the intermissions arising from undigested solids do not usually last so long, ceasing at once when the indigestible mass, whatever it is, has passed the pylorus. But though a period of calm undoubtedly succeeds this event, the patient is not safe from a recurrence of irregularity till the mass has fairly left the body. As after a period of quiescence intermissions of a more persistent and disturbing character are apt to come on, apparently from the development of ptomaines from the undigested food, there is no flatulent distention of the bowels, as there so often is in similar gastric cases, there are no borborygmi, but there is also no relief till the offending mass has passed the

anus, and then the relief is sudden and complete. Even the presence of scybalæ, or the lodgment of fæces in bowels moving regularly but sluggishly, may give rise to intermissions, either reflexly or through the ptomaines, by which they poison the body. Sometimes these intermissions are neither single nor recurrent, but take the form of two or three intermissions rapidly following one another, like a minor form of *tremor cordis*, and not recurring again for some hours or even days. This form of intermission is rare except in an aged heart; it is accompanied by a choking sensation about mid-sternum, by pallor of the face, sometimes by a momentary arrest in walking, but never by a faint. This is very alarming to a man hitherto in good health, yet conscious that he has passed his threescore and ten. So great, however, is the recuperative power of the heart, that with time, which is all-important, for hurry is injurious in such cases, all this may disappear. I have recently seen an old gentleman of eighty-four, who eighteen months ago was seized in this way, and who told me the other day, "I am now as well as ever I was in my life, bar age, and I don't suppose you can mend that." His confidence is restored, he is no longer afraid to move about, and his pulse now beats steadily and regularly,—surely something to attain at that period of life, even though it took nearly eighteen months to do it.

Tachycardia, rapid action, is, however, the commonest phenomenon associated with the senile heart, and this varies in its nature, quality, and cause. Tachycardia is a term originally applied to cases of a paroxysmally rapid (120-200) but regular pulse of neurotic origin, but such typical cases shade off in every direction. Tachycardia is a rapid heart-beat, more continuous than mere palpitation, and less forcible. It may last for days, weeks, or many months—even for years; the heart-beat is feeble, at times conveying an impression of irregularity, the pulse is rapid but regular, and the blood-tension low. The heart seems to be set free from the inhibition of the vagus, and to be run off with by the accelerators, the augmentors taking no part. In this tachycardia differs from its most closely allied congener, Graves' disease, in which forcible pulsation of the heart and the vessels of the neck is an early and sometimes an only symptom. For in Graves' disease we may have violent perturbative palpitation, without either exophthalmos or goitre, sometimes with the exophthalmos alone, and sometimes with the goitre alone, the symptoms at first in abeyance being superadded if the disease progresses.¹ But Graves' disease affects the young chiefly and not the old; still, it occurs often at and even over middle life, and the palpitation is so distinctly neurotic in character, that any notice of tachycardia

¹ Hence Virchow's appellation, *struma exophthalmica* is more or less of a misnomer, and to be correct we are driven to adopt a distinctive and not a descriptive title. Being a Scotchman, I prefer Graves to Basedow; moreover, Graves was by five years the earlier observer.

would be incomplete without some reference to an affection so closely allied. There are also cases in which, from childhood onwards, the heart beats persistently at about 150 per minute without apparent detriment to health, the heart-rate slowing off as age advances. I am acquainted with one instance of this in a lady, now over 70, who was married and had a large family, with a pulse never under 150 till recent years, when it has become very much quieter, down to about 70. In this case there was always perfect health associated with a highly neurotic temperament, and there was never any forcible or distressing pulsation either in the cardiac area or at the root of the neck. And the same may be said of another case in which the tachycardia came on about middle life, persisted for years, and was followed by threatening of symmetrical gangrene of the finger tips,¹ which was perfectly recovered from. The tachycardia in this instance was undoubtedly of emotional origin. The most typical case of paroxysmal tachycardia I have ever seen was, however, anything but emotional in its origin. The patient was suddenly seized when playing a match at golf on Musselburgh links; he feared he would have to give it up, but a bumper of whisky steadied his nerves, and enabled him to win his match with what must have been a perfectly uncountable pulse, as even when quiet in bed the pulse-rate during an attack is never under 170, counted by the sphygmograph, which shows a hyper-dicrotic, indeed an apparently anacrotic tracing of a perfectly regular pulse of low tension. This patient is now in his sixtieth year, and during the last five or six years has had several similar attacks, each lasting four or five days, and always originating in too much tobacco and too many nips of whisky—chiefly, I believe, the latter. I have known his family for more than one generation, and am not aware that any one of them ever complained of the heart but himself, and to do him full justice he resents his ailment rather than complains of it.

In connexion with the senile heart, and apart from all other possible causes, I have seen many cases of tachycardia, pure and simple, lasting for months or years, some in whom recovery took place, and who after recovery had again—sometimes after years—a relapse, owing to some breakdown in the general health. The case of all others, however, which recurs to me when I think of tachycardia in connexion with the senile heart was a very remarkable one. The first entry I find regarding this patient, who was a well-known clergyman of the Church of Scotland, is that "the heart was dilated and slightly hypertrophied, the pulse rapid

¹ Raynaud's disease, another neurotic affection, in this instance only, of many I have known, showing an affinity to tachycardia, though undoubtedly very closely allied to those other very curious vaso-motor affections, in which there is persistent local or even general coldness of a character difficult to remove or alleviate. One patient I had ultimately died of a universal chilblain. Feelings of local coldness frequently precede, generally accompany, and are apt to follow an attack of Raynaud.

and slightly irregular." The slight irregularity soon however disappeared, and a spell of tachycardia set in which lasted, with improvements and remissions, more or less for about four years, when the patient died from an attack of pneumonia. The pulse was not only extremely rapid and feeble, but at times the heart's sounds were quite embryotic in character. Sitting with my finger upon this feeble, rapid pulse, I have often felt it run off into a scarcely perceptible tremor, and while doubting whether it would ever return, it would suddenly come back with a feeble thump and continue on as before, the patient remarking, "That was one of my peculiar attacks," but never saying that he felt faint. Under the influence of appropriate treatment, and of some months' complete rest from his duties, he became so far restored that at the end of two years he felt himself able to accept the most dignified position which his Church had in its power to bestow. And I may add, that he discharged the somewhat onerous duties of this position not only with dignity and ability, but to the entire satisfaction of his friends and of his Church. Nearly two years subsequently he died from an attack of pneumonia resulting from exposure to cold after exertion in early spring, having been wonderfully free of heart symptoms for some time previously. Indeed the heart, being slightly hypertrophied, was not specially at fault at the last, though more than sixty years' service and all it had come through had not tended to improve its power of resistance. The remarkable part of the case is this, that here we have a perfectly healthy man, leading a model life, and doing only the ordinary work of a country clergyman, which no one would consider hard or excessive, yet we have him suddenly struck down with serious symptoms due to a dilated and hypertrophied heart. There was an entire absence of all the usual causes of enlargement of the heart;¹ there was no disease of the valves, no marked arteriosclerosis, and therefore presumably no affection of the coronaries; there was no affection of the lungs or kidneys, nor had there been any undue exertion. The patient was well developed, and had reached advanced age in perfect health, so there was no reason to suppose abnormal narrowness of the aorta. Further, he was a most temperate man, so excess of any kind could not be alleged as a cause, and, so far as I know or can learn, there was no reason to suppose the existence of any hereditary disposition. But he was over sixty, and the vascular changes which age brings on every one must have considerably progressed, when he was suddenly assailed by the most terrible bereavement which can befall any man. Then he began to age more rapidly, and eighteen months subsequently he consulted me with the symptoms already described. The

¹ *Vide* Traube, *Gesammelte Beiträge zur Pathologie und Physiologie*, Berlin, 1878-79; Strümpell, *Lehrbuch der speciellen Pathologie und Therapie*, Leipzig, 1883, Erster Band, S. 422; and Oscar Fränzel, *Die idiopathischen Herzvergrößerungen*, Berlin, 1889.

rationale of these symptoms was evidently after this fashion: the heart labouring, as all hearts do more or less, under the strain thrown upon it by the loss of arterial elasticity, had its tonic contraction impaired by inhibitory emotional influences conveyed to it through the vagus—it must also have at this time suffered somewhat from loss of nutrition—and all these circumstances must have combined to produce the dilation which was followed by slight hypertrophy. The rapid heart action in this case did not shortly die off, as happens in ordinary cases of paroxysmal tachycardia, but it persisted for long, as if the same cause which had at first inhibited the heart through the vagus had simultaneously produced a more powerful and permanent effect upon the accelerators,¹ and thus we can the more readily believe when we know the cause to have been a powerful and persistent emotion.

This case is a most instructive one; the great doctrine taught by it appears to be that all such cases have as their prime cause the natural physiological changes affecting the vessels, that the ordinary results of these changes are capable of being greatly modified by various pathological and other morbid processes, and unless these are carefully watched, and their results anticipated and prevented, the end may be precipitated, the first step in this direction being dilatation of the heart. Idiopathic enlargement is a misnomer; there is always a preceding dilatation, and a sufficient cause for that. Even Cohnheim has said, "the great majority of all idiopathic cardiac hypertrophies are excentric," and that consideration of any question in relation to "non-excentric hypertrophy has chiefly a theoretical interest." This statement might, I think, well be made even stronger, but I am quite content to leave it as it is in the meantime.

It would not be right to pass from the subject of tachycardia without mentioning those by no means rare cases in which this symptom is associated with a subacute endocarditis, and terminates in stenosis of the mitral opening. These cases take their origin in various ways—overstrain, chorea, or syphilis; the heart as a rule is not dilated, and the tachycardia either passes off under treatment, or ceases when the stenosis is developed. They all belong to an earlier period of life, rarely even approaching middle life.

The converse of tachycardia is *Bradycardia*, abnormal slowness of the pulse. This has been in my experience a much more common concomitant of the senile heart than the typical paroxysmal tachycardia, though by no means so common as simple tachycardia. There are two well-marked varieties of bradycardia,

¹ *Conf.* Von Bezold, *op. cit.* Zweite Abtheilung, S. 302. "Bei langer dauernder gleichzeitiger Erregung des Vagus und des Rückenmarkes bekommt allmählich die Wirkung des excitirenden Systems das Uebergewicht über das regulatorische, und schliesslich kann die Wirkung des letztern Verschwinden, während der Einfluss des Erstem noch mit ungestörter Kraft andauert."

² *Lectures on General Pathology.* New Sydenham Society's translation. London, 1889, vol. i. pp. 70-71.

one in which the heart beats at its normal rate, but every second or third pulsation is too feeble to reach the periphery, so that we have a pulse beating at half or sometimes only at a third of the rate of the heart. In the second variety, heart and pulse are alike slow, and the rate may even be less than 30 per minute; I have known it down to 17. Hope was acquainted with both varieties; he says, "When one or two beats are regularly and permanently imperceptible in the pulse, such cases constitute the bulk of those in which the pulse is described by non-auscultators as being singularly slow,—for instance, 30 or 20 per minute. In a few rare cases, however, it is really slow."¹ So far as my own experience goes, the rarity is all the other way, as I have seen many more really slow hearts than hearts beating at the normal rate, but with abnormally slow pulses. All slow pulses, from whatever cause, are apt to be alarming from the tendency there is in such cases to pseudo-apoplectic and pseudo-epileptic attacks. The first case I saw of a heart beating at the normal rate, but with a slow pulse, was one of this character: an old lady with a gouty history, but who never had regular attacks, was suddenly seized, while shopping, with what seemed to be an epileptic attack. These seizures continued to recur whenever she attempted to make the slightest exertion, and at the time I saw her she was unable to rise from the recumbent position without bringing on an epileptiform attack. Upon examination, I found that her heart was dilated, but without any murmur, only an accentuated aortic second; that it was beating at the rate of 60 per minute, but that only every third beat was powerful enough to reach the periphery, so that the pulse-rate was only 20 per minute. Remembering Stokes' admirable essay on the connexion of pseudo-apoplectic attacks with the feeble circulation he believed to depend upon fatty degeneration of the heart,² and remembering also the researches of Kussmaul and Tenner on epileptiform convulsions from hæmorrhage,³ there was no difficulty in connecting the epileptiform seizures with the state of the heart, and there was just as little difficulty in determining upon the appropriate treatment. The result was most satisfactory,—the old lady who had been regarded as the victim of serious senile epilepsy had no more attacks. Within a week she was able to entertain some friends at dinner, and she lived for several years without any recurrence of her serious symptoms, dying gradually at last from asthenia.

Most of the slow pulses that I have seen have been, however, cases of slow hearts also. Several years ago I received the following letter from a professional friend:—"A medical man in this

¹ Hope *On Diseases of the Heart*, 3rd edition, London, 1839, p. 377.

² *Dublin Quarterly Journal of Medical Science*, vol. xi. 1846; also *Diseases of the Heart and Aorta*, Dublin, 1884, pp. 322, 362, etc.

³ Kussmaul and Tenner *On Epileptiform Convulsions from Hæmorrhage*. New Sydenham Society, London, 1859.

neighbourhood, in extensive first-class practice, knowing I had been your resident physician, asked me to examine his heart. What rather troubled him and made him think of his health was that formerly his pulse was always 60, and that now it is invariably 48, except sometimes after dinner, if he has taken a little champagne, when it reaches 60 again. He has *arcus senilis* (age 53) well marked, but nothing remarkable in the radial or temporal arteries, and is as active and energetic as possible. Lately I have noticed that he often looks tired and worn out, but he says he is not overworked. I carefully examined the heart, and found nothing except feeble apex beat and sounds. His temperature does not, as a rule, come up to 98°. I tell you this because Sir William Jenner told him that he had noticed that men with a slow pulse and rather low temperature live a long time. This gentleman declares he does not feel at all ill, but is anxious to know whether his slow pulse (so much slower than formerly) ought to be looked upon as indicating degenerative changes in the heart and vessels; and if so, whether it would be wiser to knock off some of his work, which he can easily afford to do." My reply to this was, that the signs and symptoms mentioned were evident signs of cardiac failure; that the heart, so far as I could judge, was beginning to dilate, and that the arteries had undoubtedly lost their elasticity, and would probably be found to be more atheromatous than was suspected. I also advised considerable lessening of his daily work, and indicated the lines upon which the treatment was to be conducted. I presume the treatment advised sufficed to prevent the development of any more manifest symptoms of cardiac disease, as I heard no more of the patient till nearly nine years subsequently, when he was found dead in bed one morning when on a yachting tour.

A good many of these slow hearts have epileptiform convulsions, from which some die. In the fatal cases there is always the doubt that there may be some other cause, but when the attacks cease when the pulse returns to its normal frequency, the diagnosis does not seem doubtful. And yet it does seem strange to have a sphygmographic tracing with a great round-topped predicrotic wave, showing an apparently high blood-pressure, in a case where convulsions have recurred because of an abnormally low blood-pressure in the brain,—a further proof, if any were necessary, that a sphygmographic tracing exhibits mainly the condition of the arterial wall at the spot where it was taken, and cannot be relied upon as an exponent of the general intra-arterial blood-pressure. All the slow hearts I have seen have shown evident signs of dilatation, but they have not usually shown any marked indications of weakness.

Stokes describes as one of the diagnostic marks of a fatty heart "a permanently slow pulse, the rate of which varies from 50 to 30 in the minute, or even less."¹ To this he was probably led by his knowledge that in fever cases a remarkably slow pulse is often

¹ Stokes, *op. cit.*, p. 326.

associated with softening of the left ventricle; also by the fact that very slow hearts with signs of dilatation are, I suppose, invariably senile hearts, and are, therefore, not unlikely to have some patches of fatty degeneration about them in case of death. But Stokes brings forward no proof, and even he confesses that the diagnosis between fatty degeneration of the heart and a heart simply dilated and weak is very hard to make.¹ Now-a-days we know that slow hearts are not necessarily fatty, and also that there is neither any one symptom, nor any group of symptoms, which can be regarded as pathognomonic of a fatty heart, so that the old idea of there being a recognisable disease called fatty degeneration of the heart is no longer entertained.²

A heart which beats at an abnormally slow rate does so, undoubtedly, not because of any change in the condition of its muscular fibres, but because its movements are retarded by an inhibition coming through the *vagus*, and affecting some part possessing a high potentiality (*vide antea*, p. 595), presumably the sinus or auricle. A slow heart does not always give rise to pseudo-apoplectic or pseudo-epileptic seizures, and it is not inconsistent with prolonged life and a fair amount of health.

Some ten years ago I received the following letter:—"In autumn 1875, after a time of much anxiety, I fell down and was unconscious for two minutes, with a very slow pulse. At various times after that, in 1877 and 1878, I had turns of faintness, accompanied by a great slowing of the pulse, which resumed its natural pace when the faintness wore off. In November 1879 the pulse got down to a steady slowness of 36 per minute. A course of quinine and iron was tried without any good effect. My friend Dr Dobie, of Chester, then prescribed for me, and after about six weeks, about the middle of February, the pulse was suddenly restored from 36 to 70, and continued at its usual rate all March, but in April it fell gradually back to 36, keeping remarkably steady at that figure. Occasionally, for a few minutes at a time, it rose to 40 or fell to 28, but it speedily returned to 36 as its normal rate, which it has ever since maintained. During June and July I again tried Dr Dobie's prescription, but without any good effect. In August I went to Harrogate, and by Dr Myrtle's advice took Kissingen water; at the end of a week this he supplemented with chloride of iron water. At the end of another week I had become rapidly

¹ Stokes, *op. cit.*, p. 334.

² Die einfache Erfahrung, dass man in vielen Fällen von Herzdilationen mit starker unregelmässigkeit des Pulses bei der Section oft nur eine sehr geringe order gar keine Fettmetamorphose findet, während schwere Verfettungen der Muskelatur ohne alle Symptome von Seiten des Herzens verlaufen können, die Erfahrung also dass die Muskelverfettung nicht im directen Verhältniss zur Schwere der klinischen Symptome steht, zwingt uns ein besonderes Krankheitsbild "Fettherz" aufzugeben.—Fräntzel, *op. cit.*, S. 191; *conf.* also *Ed. Med. Journ.*, September 1889, p. 203; also, Balfour, *op. cit.*, pp. 309, 348.

weak, and Dr Myrtle ordered me to abandon his prescription. Since then I have abandoned all treatment, and continue very weak. This day, at early morning, my pulse was 30 ; while I write it is 36."

This letter was received in October 1880, and I find from my notes that the patient laboured under a weak dilated heart, with a loud systolic mitral and tricuspid murmur ; pulse ranging from 36 to 40 ; no albuminuria. He made but little progress under treatment while under observation, the pulse still remaining slow, and was lost sight of in a few months. Being lately desirous of ascertaining the result, I put myself in communication with the patient, and received the following letter :—" I seem to have sent you an account of my illness in 1880, so that I need not notice it previous to that date.

" During the years 1881, 82, and 83 the pulse continued from 30 to 34, accompanied by great exhaustion. During these years I gave up all treatment of any kind, living in my usual way, without any medical advice whatever.

" About the end of November 1883 I was amusing myself with a little grandson from India, and had a good deal of laughing and fun with him. A change seemed to have come upon the long dreary tramp of 30 with its solemn regularity ; it had now become of the most irregular character, ranging from 30 to 80. A strong beat, then five or six very small ones all in a rabble, like the bursting of a wooden barrier across a river with masses of the debris gathering again and obstructing the current for a time, and then bursting through again. At the end of about a week the irregularity ceased, and at the end of 1883 it was moving quite naturally at 70.

" This improved state of things continued for several months, when it began again to slow down to the thirties, where it has continued ever since—the highest record of this period being about 36, and the lowest 28. One peculiar feature of this slow pulse is its regularity ; in some conditions 36 can be depended upon, in some 34, and in some 32. It does not often come below this, although 28 has been recorded several times. While I write my pulse is perfectly steady at 36. I have been much troubled with sleeplessness, caused by twitching or flickering of the legs, accompanied by great depression of spirits ; but in other three months I shall, if spared, have lived the threescore and ten, which most people admit is quite long enough. I always look well, having a very florid complexion, with a good deal of blue, however, in it. I have not fallen down again to be insensible as I was at the first, but have been glad to stretch myself out on the road sometimes, so as to avoid what appeared to be a fainting turn coming on."

This extremely graphic and interesting communication needs no comment from me. It points out very clearly that a slow pulse, even when associated with a dilated heart, is not necessarily

accompanied by pseudo-apoplectic attacks, nor inconsistent with a long and fairly comfortable life. It also describes most graphically the pulse of *delirium cordis*, and indicates very clearly the manner in which a slow pulse may pass into this delirious condition. We have but to suppose that the *vagus* inhibition continued to maintain the auricles at their acquired slow and regular rate, and then to remember that the unwonted exercise and excitement indulged in were certain to cause the ventricles to beat faster, and the irregular tumultuous action is at once accounted for (Roy). The strong beat of the pulse would coincide with the ventricular systole immediately following the contraction of the auricles, while the "rabble" of five or six abortive beats which intervened were due to systoles of the unfilled ventricle, a ventricle unfilled because of the absence of an auricular systole. This is a condition readily remediable by appropriate treatment, except in its most extreme form of which I can only recall three well-marked examples. Two of these were well-known professional men, who both died from dilated hearts—one at the age of threescore and ten, and the other twenty years younger. Of these the elder had the pulse of *delirium cordis* for twenty years before his death, of my own knowledge. I doubt if the younger man had it longer than about five years, and both continued their work to the last with the most perfect calmness and self-possession. The only other example of well-marked and persistent *delirium cordis* I have ever seen was an old lady in the heart of Westmorland, who was shown me as a clinical curiosity. But minor forms of *irregularity* are extremely common in connexion with a dilated heart. They vary a good deal in character, and they vary very much in cause. At times the pulse is only occasionally irregular as the result of exertion or emotion, sometimes very readily brought on by either cause, at other times requiring some considerable exertion or a somewhat powerful emotion. In no inconsiderable number of cases the heart is persistently irregular for years; without presenting the extreme form of *delirium cordis*; it sometimes approaches this ideal, while in general the irregularity is only occasional, trifling in character, and apparently quite independent of both exertion and emotion; sometimes, indeed, disappearing under the influence of the excitement thus induced, and ceasing suddenly when the heart by treatment gets strong enough to resist inhibitory or other evil influences. Foster says, "We may distinguish two kinds of irregularity—one in which, in spite of all favourable nutritive conditions, the cardiac substance cannot secure, even perhaps for a minute, a steady rhythm; and another in which the rhythm, though normal under ordinary circumstances, is, so to speak, in a condition of unstable equilibrium, so that a very slight change in conditions, too much or too little blood, or some small alteration in the composition of the blood, or the advent of some, it may be slight, nervous impulse, augmentor or inhibitory, develops a temporary

irregularity."¹ A very excellent description of two distinct classes of cases, and perfectly truthful with this exception, that all my experience leads me to regard irregularity as a very certain indication of impaired cardiac nutrition, and not, therefore, likely to occur where the nutritive conditions are "favourable." I have often seen irregularity develop suddenly in those who were apparently strong and healthy, and quite invariably have found it to depend on some impairment of the cardiac nutrition as its ultimate cause. Quite recently irregularity developed suddenly in two patients. The one had some slight tachycardia and breathlessness, the result of commencing dilatation, and the irregularity in his case was precipitated by a certain degree of anæmia due to too rapid a declension in weight, the result of a needful restriction in diet. The other case was an elderly lady, whom I had sent two years ago to Marienbad, where she received much benefit, losing about a stone in weight. This summer she went off again to Marienbad, thinking she would be again benefited by it, and without any other reason, as she had not regained any of her lost weight. While under treatment there she suddenly developed great irregularity of the pulse with tendency to faintness, and was summarily dismissed. She came straight here, and I found her heart, which two years ago had been apparently normal, only somewhat oppressed by obesity,² now feeble and considerably dilated. There seems no reason to doubt that the Marienbad water had no good effect upon her, not by unduly reducing, but probably by increasing the intra-arterial blood-pressure, and thus throwing a greater strain upon a ventricle already beginning to fail.³

Anæmia, however produced, is apt to favour irregularity by placing the heart in a condition of unstable equilibrium. In these circumstances any trifling emotion or exertion at once precipitates irregularity; the stomach is apt to be flatulent, and stooping forwards, or lying on the back in bed, both of which postures favour the upward pressure of a stomach full of gas, at once give rise to intermission and irregularity. It is also specially in anæmic hearts that we are most liable to have the *subitanea excitatio e somno*,

¹ *Op. cit.*, p. 346.

² Fat overlying the heart seems occasionally to oppress the heart, but this is doubtful, and it is probable that all the symptoms arise from a weak dilating heart occurring in an obese body. "Wir müssen uns überhaupt daran gewöhnen, einerseits den Begriff des Fettherz, d. h. eine diffuse moleculare Verfettung der Muskelfibrillen als eine selbständige Krankheit aufzugeben, andererseits aber die ansicht festzuhalten, dass die eintretenden Functionstörungen des Herzens mit Verfettungen der Musculatur nicht in directen zusammenhang zu bringen sind."—Fränzel, *op. cit.*, S. 89.

³ German physicians are well aware of the risk run in using effervescing waters in such cases. "Die Ärzte haben allmählich gelernt, zu dem Zwecke, eine längere Zeit hindurch abnorme Stuhlentleerungen zu bewirken, nicht mehr willkürlich den Gebrauch der abführenden in Deutschland üblichen Brünnen anzuordnen, wenn es sich um eine abnorm hohe Spannung im Aorten system handelt,"—Fränzel, *op. cit.*, S. 102; and Fränzel specially indicates Marienbad, Kissingen, and Tarasp, as to be avoided in such cases.

which Alison regarded as so important a sign of heart disease, and which long before his day was regarded as pathognomonic of hydrothorax, but which is far more often a sign of anæmia than of anything else.

(*To be continued.*)

II.—VALEDICTORY ADDRESS, DELIVERED BEFORE THE MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH, 6TH NOVEMBER 1889.

By JOHN SMITH, M.D., LL.D., F.R.C.S. Ed.

IN relinquishing the duties of the chair this evening, I have to express the interest and pleasure with which I have presided at these meetings and listened to the communications and debates of the Society during my term of office as your President for the last two years. And while I thanked you at the commencement of my career for the honour you then conferred upon me in my election to that distinguished position, I have now at its close once more to thank you for the uniform courtesy and support afforded me on every occasion of our meeting; while in your name—in other words, in the name of the Medico-Chirurgical Society—as well as for myself individually, I have to thank the Secretaries and Council, not forgetting the Editor of our *Transactions*, for their able assistance, their kind interest, and unsparing efforts in promoting its welfare and its advancement in every possible way.

There is a custom well known to you all as a ceremony of the most remote antiquity—I mean that of the Harvest Home. This old festival was, as it now is, the natural outcome of a satisfactory conclusion to a period of useful and beneficial work and care; and viewed in such a manner, there is between the valedictory meeting of a society of this kind and the closing Autumn's Harvest Home no inconsiderable analogy. For if at the celebration of that festivity its proceedings were but the reflex of inward joy at what had been accomplished, something of the same kind can scarcely fail to be here produced, on the past showing a most satisfactory accomplishment of much useful work, and the immediate future presenting, if not to you, at least to your retiring President, a temporary cessation of much admittedly most pleasurable work, but also of some considerable care and anxiety. To you, indeed, not so much a cessation as the introduction of a refreshing variety in your work, for it may be said that—

“With to-morrow's sun

Your annual toil begins again, the never ceasing round.”

Let us look, then, and see what has been the work of the last two sessions. Well, it would demand much more time than can be here afforded even to recapitulate adequately all that during that time has been done. Some matters which have been discussed bulk much more largely in value and importance than others. There have been occasions when the subject of communication or debate has taken more possession of us and lingered longest in our

mind, and which candidly we would rather not have lost, than any of the others; but while certain contributions, whether in the form of papers read, or patients introduced, or morbid specimens exhibited, may thus present themselves more prominently for remark, not the smallest donation of the kind made at these meetings has been without its value, whether in point of interest or instruction, in furthering the advancement of Medicine and Surgery. It is impossible, however, even if it were called for, that I should review, or even mention, each and every one which has been thus communicated or exhibited at the Medico-Chirurgical Society, and commanded its attention and deliberation, since I had the honour of assuming the duties of the chair in November 1887, so I shall not attempt it.

At that meeting the retiring President, Professor Grainger Stewart, delivered to you his valedictory address, which I need not remind you was full of useful suggestions on medical teaching and legislation, and in which he ably contrasted the medical aspects of 25 years ago with the present time,—showing the immense strides the profession had made during that period in every department. About this time, also, the subject which had been most recently engrossing, perhaps, the largest amount of the Society's consideration and investigation was still *sub judice*, namely, the nature of the contagium of Scarlet Fever; and two reports in reference to this inquiry had been submitted in accordance with the instructions of the meeting of the previous June, and a special meeting was held for the discussion of the subject on the 20th July. Interesting and valuable, however, as these reports were, and able and instructive as were the remarks which followed upon their reading, much more was felt to be necessary towards fully and satisfactorily elucidating many points involved in the etiology and treatment of this disease; but the somewhat gigantic aspect it thus assumed, compared with the modest resources of the Society, led to the subject being numbered, to a large extent, with the many other "Enterprises of great pith and moment" which with "This regard their currents turn awry and lose the name of action." Nevertheless a certain impetus would seem to have been given to such inquiries; the line of thought seemed, as it were, fairly started, and soon to be directed in a large measure to certain cognate subjects, to which I shall in due course have to refer.

At this meeting also—upon which Professor Grainger Stewart resigned the chair to his successor—an interesting paper was read by Dr Cathcart, the subject being, "Should Partial Foot Amputations be Abandoned?" The general question in this communication, it will be remembered, seemed to be whether under the aspects of modern surgery not so much weight need be attached to the axiom that the danger of amputation was proportionate to its nearness to the trunk, and if so, that any advantage in removing a larger portion of the foot should not be lost sight of

on this account; artificial limb makers being inclined in many cases to approve of those amputations, such as Syme's, which enabled them to make a neater substitute. The "Etiology of Tumours" furnished at an early period of the session an interesting discussion opened by Dr Bruce in the absence of Dr Woodhead, and in which many scientific and not a few practical views were advanced by the physiologists and surgeons present upon that occasion. An important and interesting paper by Dr Symington "On the Shape and Position of the Liver" will not easily be forgotten by such members as enjoyed the advantage of hearing it read; while those of Dr Skene Keith "On Treatment of Fibroid Tumours of the Uterus by Electricity," of Dr Hunter of Linlithgow "On the Place of Specialism in General Practice," of Dr M'Bride on the "Diagnosis of Maxillary Empyema as a Symptom in Ozæna," and of Professor Annandale on the "Surgery of the Male Bladder," led up to the deeply interesting, exhaustive, and important dissertation by Principal Walley upon "Animal Tuberculosis in Relation to Consumption in Man." Following upon the reading of this communication, the Society considered that it was desirable to address the Secretary for Scotland and also the Lord President of the Privy Council upon the subject, which, after several meetings of Council and the appointment of a sub-committee, was done, with the result of a request by the Secretary for Scotland being addressed to the Society, desiring that two of its members should be sent as delegates to London, to give evidence before the Committee of the Privy Council on Bovine Tuberculosis. Drs Littlejohn and Peel Ritchie were accordingly appointed to discharge this duty and report, which was duly and efficiently performed, and a cordial vote of thanks by the Society formally accorded these gentlemen. It was in regard to this paper of Principal Walley's that the investigation into the nature of contagion was again very generally revived, and with somewhat more practical results than the previous deliberations on that of scarlet fever,—since it is not too much to believe that the manner in which the Society submitted its views in the memorials and evidence alluded to, not only to the National Legislature, but to the municipal authorities of Edinburgh and other towns, served to lend an impetus to those inquiries and regulations which are at the present time being carried out at head-quarters on this very serious subject. An able and exhaustive communication "On the Clinical Value of Temperature Observations in some Acute and Chronic Diseases" by Dr J. O. Affleck, followed by a long and interesting discussion; a paper on "Nephrotomy" by Dr Miller, and another on "Respiratory Neurosis" by Dr Smart, were the next communications; while those of Dr Dods on "Tropical Malaria," of Dr Troup on the "Microscopic Diagnosis of Phthisis," followed by a long discussion on the Bacillus of Tubercle; of Dr Cotterill on "An Epidemic of Sore Throat in Relation to Milk Supply," of Dr M'Bride on "The

Removal of Nasal Polypi," and of Dr Thom of Criefff on "Tracheotomy in Children," brought the session of 1887-88 to a close.

The papers of the next session commenced with that of Dr Cotterill upon "A Case of Cure by Resection of Intestine of Faecal Fistula following extensive Gangrene of the Transverse Colon." Members will recollect the description given of this remarkable and successful operation, and that Dr Cotterill had shown among the morbid specimens exhibited at the previous June meeting the piece of large intestine removed, and which measured fifteen inches long. "The Treatment of Diphtheria in Children by Antiseptic Steam," by Dr Wyld Pairman; "Clinical Notes on Laryngeal Tumours," by Dr M'Bride; "A Case of Elephantiasis," by Dr Felkin; "The Removal of Naso-Pharyngeal Tumours," by Professor Annandale; "Tuberculosis of the Bladder in a Case of Phthisis," by Dr Philip; a further communication on "Sites for Amputation in the Lower Limb in Relation to Artificial Substitutes," by Dr Cathcart; and "Acute Intussusception in a Child cured by Operation," by Professor Annandale, brought the session on to February, on the 20th of which month a special meeting of the Society took place, largely attended by both the medical and legal professions, when a discussion was opened and carried on at great length upon the important question of "The Necessity for further Legislation in the case of Habitual Drunkards." Like the discussion on Bovine Tuberculosis, the proceedings of this evening attracted much general interest to the subject, and appears to have been in many ways of material service in advancing the prospects of those measures for the establishment of what have been designated "Restorative Homes," and such a Bill as that drawn up with this object in view by Mr Charles Morton, the late crown agent, which was favourably commented upon at this meeting. Dr Foulis' communication on "Raising the Tongue and Epiglottis and Stretching the Aryteno-Epiglottic Folds at one and the same time" was read at the first March meeting, while at the second a long and instructive debate was held on the "Pathology and Treatment of Strumous Glands," in which most of our leading surgical teachers and practitioners took part. An interesting paper was read in May by Dr James on "The Pathological Physiology of Pleurisy and Pleuritic Effusion," and during the same month Professor Chiene communicated a paper on "Hospital Experiences," while Dr Miller delivered one on "Improvements in the Operation of Excision of the Knee for Strumous Disease." Two papers were communicated in June, one on "Cheyne-Stokes Respiration" by Dr Gibson, and another on the "Surgical Treatment of Empyema" by Dr Morison, and on the 19th of the month another largely attended special meeting was devoted to a "Discussion on Intestinal Obstruction, its Pathology and Treatment, Medical and Surgical," while the last

contribution of the session was that of Dr Berry Hart upon the "Minute Anatomy of the Placenta in Extra-uterine Gestation."

In summarizing the work thus done I have restricted myself to the papers read at these meetings. But in addition to these there must be kept in mind that at every meeting, except those of a special nature, a wealth of interest and instruction was to be found in the exhibition of patients and pathological specimens, instruments and apparatus, too numerous, as I have already said, to be here dealt with beyond their mere mention.

With such a harvest, then, thus gathered in, is it surprising that the Society should, at the occasion on which we now meet, congratulate itself on what it has achieved? In what other way could the same amount and variety of information have been so pleasantly overtaken or so effectually disseminated? Over and above the ordinary modern facilities for the publication of original work, such meetings as these are an advantage of incomparable magnitude in many respects. Nothing is more common in scientific research than that men in elaborating some work of inference or discovery do so with a bias or leaning towards their own persuasions or prejudices. The hunt after arguments supporting one side of the question unconsciously hoodwinks the mind in many an instance to the fallacies and errors of its reasoning, and leads to the mistaken conviction that it has formed the only right conception of the truth. In such a case discussion or debate before a society of this nature seldom fails, not only in dispelling error, but in evolving some fresh and additional ideas, and in throwing a new and increased light upon the views and conclusions of the inquirer. While even as a direct source of knowledge and information, not to speak of mental training, such meetings are of no small value to those who might otherwise be restricted to the silent teaching of their book-shelves, accepting and espousing as gospel the opinions and assertions found there without troubling themselves about either their establishment or confutation. Here, on the other hand, we stand face to face not only with much excellent work done, and with the knowledge and experience it has furnished, but we have an opportunity of discussing or hearing discussed, in presence of and with the author—the workman—himself, the ideas and the statements, and the facts he has promulgated, and judging for ourselves of their exactness or stability as scientific truths.

And there is something more than this; apart from the benefits and information thus disseminated exclusively among the members of such a Society, apart from the credit and reputation which may in many cases deservedly attach to the communications read, the opinions and conclusions and recommendations of a representative body of this kind, when it is considered expedient that they should be issued and made public, ought to be, and are, as we have seen, of a weight to command attention, not only in all matters of professional, but in many of general importance.

For it is as much, and even more, the business of the Society to raise the standard of knowledge among the many than to advance the reputation of the few. Our older members who have already made their mark should not forget this, and might perhaps be induced to lend us a little oftener the light of their countenance as well as the benefit of their experience in many matters where experience alone constitutes, as it sometimes does, the main thing needful. It is, no doubt, during the earlier years of professional life that the latent energies rejoice most to manifest themselves, and that the greater portion of such work as that of the Medico-Chirurgical Society is accomplished. To a certain extent this is only reasonable and what might be expected; but the fact still remains, that in all probability much that would be valuable and interesting and instructive at our debates is lost by the absence of those who, presumably content with having already in the past contributed their fair proportion of such work, naturally hesitate,

"When comes still evening on, and twilight gray
Has in her sober livery all things clad,"

to leave their comfortable hearth and face the wintry blast, and who therefore, it may be supposed, adopt something like the sentiments of the husbandman of old, saying, "Thou hast already done due service; thy barns are full, and there is much good now laid up in store for thee; take thine ease therefore, eat, drink, and be merry."

From year to year, moreover, we miss the presence and assistance, and have to lament the loss by death of many valuable and distinguished members—many whose places are by no means easily filled up. During my own term of office there have to be recorded the deaths of one honorary member, the distinguished Professor Donders of Utrecht, and one foreign corresponding member, Prof. Breisky of Prague; of that veteran of the profession Dr Archibald Inglis, a man who during his long, honourable, and useful career filled many high positions, and among them the Vice-Presidency of our Society in 1859, and who, having been admitted so far back as 1827, for some years headed the list as senior member of the Society; while a much younger and deeply lamented death is fresh in the memory of us all, namely, that of Dr Alexander Sinclair, Fellow of the Royal College of Physicians, and a member of the Medico-Chirurgical Society since 1873. Two corresponding members within the United Kingdom have also to be added to the list, namely, Dr Robert Gordon Latham and Dr Charles J. B. Williams, both of London; two non-resident ordinary members, Dr John Traill of Arbroath, and Prof. F. S. B. de Chaumont of Netley; and three ordinary members not resident in Edinburgh, Dr Donald MacRaild, Greenock, Dr A. Murray Gibson, Portobello, and Dr Wm. McCulloch Watson of Montrose, brother of the late Professor Morrison Watson.

And there is another and quite a different class of men whose

absence we deplore—that is those who, oblivious of their own interests as well as of the intellectual pleasure afforded in such meetings as these, have never joined the Society at all. We can only hope and trust, however, that before long they also will see the advantage and the honour of having their names added to the illustrious array of those already gracing the list of membership since the day of its foundation.

These and other drawbacks and discouragements are common to every association of this nature; but although the Medico-Chirurgical Society has not, any more than other bodies of the kind, enjoyed an uninterrupted blaze of noonday sunshine, it has under all circumstances displayed an undaunted hope and indomitable perseverance which has met and surmounted many obstacles, and fully achieved—and I think the experience of the past two years warrants me in saying that it still continues fully to achieve—the objects of its wise and beneficent founders. The search for truth, not what any individual contributor may honestly suppose or merely wish to be the truth, is the essential purpose of our debates, and their influence and their success have always been established under the motto, “*In certia unitas, in dubiis libertas, in omnibus caritas.*” In this way no inglorious service has been done by this, the leading association of our Faculty in the past, and the estimate to be formed from such a retrospect may, I trust, be but an incentive, a wholesome stimulus, and a foretaste of what we may yet expect to be attained by our Society in the future.

I have to apologize for the brief and imperfect manner in which I have ventured to uphold and maintain the influence for good which this body has exercised, and still deserves to exercise, in matters medical. I feel that I have treated the subject too briefly for its merits, although, perhaps, too amply for your patience. Experience, however, has taught me that I might rely on your indulgence in this, as I have often done in other circumstances previously; and I shall now—in relinquishing my duties here in favour of my distinguished successor, your President Elect, Professor Simpson—only add that, as I retire from this chair, the period of its occupancy by me, during the meetings of the last two years, is one which I shall ever look back upon as a bright and most pleasant experience in my professional life.

III.—ON THE CURE OF FACIAL NEURALGIA, ODONTALGIA, AND ALLIED NEUROSES.

By GEORGE LESLIE, M.B., F.R.S. Ed., Falkirk.

(*Read before the Medico-Chirurgical Society of Edinburgh, 20th November 1889.*)

ON the 16th August 1889, I found that, by an operation of extreme simplicity, I was able to arrest a very severe attack of supra-orbital neuralgia, and in what seemed to be no more than

the period of nerve transmission. The idea at once suggested itself, that if a neuralgia or other pathological condition of one branch of the fifth cranial nerve could be controlled so easily, it was almost certain that similar conditions of other branches of the fifth, and probably of other cranial nerves, might be successfully treated by the same means. I immediately began a research on this point, which has been carried on during the past three months, and of which I now beg to lay the results before you. They appear to be important, to show, indeed, that many of the most distressing and acutely painful ailments to which we have been supposed to be heirs—such as neuralgic headache, faceache, toothache, earache, and allied complaints—are, in the great majority of cases, unnecessary, and that a beneficent Nature has provided for them, to the rich and poor alike, an effectual remedy.

For all the cases of this nature which have come under my care a uniform treatment has been followed. It has been the application of powdered chloride of sodium—common table salt—to the nasal mucous membrane. The salt may be used by the patient as snuff, a pinch being taken into the nostril of the affected side, and in many cases I have found this to be effectual in preventing recurrence, but the best results have been got when the salt has been applied by means of an insufflator. In practice I charge a small insufflator, the chamber of which contains about four grains, and ask the patient to draw air up the nostril while I inject the contents. It will be found that the application produces little pain or discomfort.

It is probable that other chemical substances, especially those allied in constitution to chloride of sodium, may produce similar therapeutic effects, but as I have not had a specially obstinate case in my own practice, I have not yet tried others, and have considered their discovery a matter more of scientific curiosity than of practical importance. The stimulation by chloride of sodium appears to induce in the nasal branches of the fifth nerve a form of nerve motion, which causes reflex inhibition of the pathological process in the nerves affected, inhibits the abnormal form of nerve energy, of which the expression is pain, and replaces it by the normal form, of which the expression is not pain.

The mode of disappearance of the neuralgia is noteworthy. So unattended is it by any form of shock or other unpleasantness, that though the patient may be suffering from intense pain one minute, and be absolutely free from it the next, it is generally somewhat longer before he can realize his altered condition, and he usually employs a short time in introspection before announcing the favourable result.

Although a single application usually suffices for the immediate inhibition of neuralgia, especially when it is recent and localized in one branch of the fifth nerve, in other cases, where the disease has been of long standing and of extensive distribution, I have

found that insufflation repeated every half minute, for about five minutes, was required. It is as illogical to ascribe failure to this method of treatment because one application may not give immediate relief from any form of cranial neuralgia, as it would be to deny the anæsthetic properties of chloroform, when it was found that one act of inhalation of its vapour did not produce anæsthesia.

As to the results attained, I will first crave your consideration of the successful cases, not only as they are naturally regarded with most complaisance, but as they greatly exceed the others in number, and as their study may help us to understand the causes of failure in the others. During the past three months I have treated about forty cases of cranial neuralgias and allied diseases with complete success, two or three with partial success, and two with no effect. The limits of this paper will only allow me to give a selection from the first group of cases.

CASE I.—*Supra-orbital Neuralgia*.—Mrs R., æt. 59, consulted me on 16th August 1889. Stated that she suffered from intense pain in the left supra-orbital region and in the left orbit, with dimness of vision in the left eye. The affected area was tender to touch. The pain had been first felt a fortnight before, and had been intermittent, but during the previous night and morning it had been continuous. I applied chloride of sodium to the mucous membrane of the left nostril, with the result that the pain and tenderness disappeared instantly. The patient was much astonished at the sudden and complete transition from agony to comfort.

19th November 1889.—I have seen the patient to-day. There has been no recurrence of the neuralgia.

N.B.—There was no element of mystery in this case; the patient knew that it was table salt which I applied.

CASE II.—*Supra-orbital Neuralgia*.—Mr J. R., æt. 39, consulted me on 10th October 1889. Stated that he had suffered, generally for about ten days every year for the past five or six years, from severe neuralgia in the left supra-orbital region. He had derived little benefit from treatment, which had consisted of cupping and liniments externally, with internal administration of quinine, iron, etc. The pain had been first felt at 8.30 A.M., and by 9 A.M. it was very severe. I saw him about noon, when I insufflated powdered chloride of sodium into the left nostril, and got rapid and complete cessations of the neuralgia. My last note in this case is on the 2nd November, when there had been no recurrence.

CASE III.—*Neuralgia of Right Temple*.—Mr D. L., æt. 33, 13th October 1889, complained of severe pain in the right temple. Stated that for the last seven years he had suffered from neuralgic attacks in the same region, which had usually occurred weekly, and had sometimes lasted two days. Treatment as in Case II. The result was instant relief.

24th October.—The patient again called, the pain having returned, but in a modified degree. The result of treatment was as before.

The following may be regarded as typical cases of toothache which I have treated:—

CASE IV.—*Odontalgia*.—Mr J. A. had suffered from toothache, referred to second right upper molar, for about a fortnight. Had gone to Edinburgh, 2nd September 1889, to consult his dentist, who, at 2.30 P.M., stopped the affected tooth. The process of stopping gave rise to increased odontalgia, but he was assured that the pain would disappear in an hour or two. The patient returned to Falkirk at 4 P.M., but the odontalgia became excessive. Hot salt and other domestic remedies were applied with no beneficial effect. As the family knew that I did not profess any form of dentistry, I was not called until 10.30 P.M., when I found my friend and patient in excessive pain. The result of treatment was instant relief.

19th November 1889.—There has been no recurrence of the toothache.

CASE V.—*Odontalgia*.—Nurse A. M. consulted me on 3rd September. Stated that she had suffered from toothache, which I found was referred to the first left upper molar. When I saw her the pain was evidently very acute. After the sodic chloride treatment the pain disappeared in a few seconds.

CASE VI.—*Odontalgia*.—Master J. W., æt. 10, was brought to me on 21st September. Complained of severe pain, referred to the first right upper molar. The result of treatment was instant relief.

CASE VII.—*Odontalgia*.—Mr J. W., æt. 25, consulted me on 14th October. Complained of toothache in third right lower molar. Had been very severe for two days, and patient had slept little during the previous night, having been kept awake by the pain. With treatment he had instant relief.

CASE VIII.—*Odontalgia*.—J. H., æt. 21, governess, was brought to me on 4th November. Was suffering from excessive pain referred to the third lower left molar, which exhibited indication of caries. The result of treatment was complete relief in about 40 or 50 seconds.

I have details of many cases of odontalgia which I have treated by the same means, and with entirely successful results, but consider that their enumeration is not now necessary.

CASE IX.—*Facial Neuralgia*.—Mrs F., æt. 50, consulted me on 30th August. For several years she had suffered from severe facial neuralgia, for which she had used many remedies, but she had come to regard it as incurable. In this case not only was the pain so continuous and so intense in character that she rarely had many hours consecutive sleep, but the tenderness of the affected

area was so excessive that the patient had great pain in using a sponge to the face or even in letting a veil rest on it. When I saw her she complained of great pain in the left temple, orbit, infra-orbital, and maxillary regions. The result of the chloride of sodium treatment was almost instant disappearance of the neuralgia from the temple and the orbit, probably thirty seconds later from the infra-orbital region, and in about a minute more from the upper and lower maxillary regions. Not only did the pain disappear, but there was left absolutely no trace of the accompanying tenderness.

18th November.—The subsequent history of this case is exceedingly satisfactory. The neuralgia recurred in a modified degree, and only in the infra-orbital region, several times, but gave way at once to treatment. She is now practically free from neuralgia, and is in the enjoyment of ordinary health.

CASE X.—*Facial Neuralgia*.—Mrs J., æt. 69. This case was very similar to the above. The patient consulted me on 20th September, when she had the symptoms of an acute attack of neuralgia, involving all the branches of the fifth nerve of the left side. There was great tenderness on pressure over the affected area. With treatment there was relief in a few seconds, the pain disappearing first from the ophthalmic division of the nerve. I was assured, 18th November, by a member of this lady's family that the relief had been permanent.

CASE XI.—*Facial Neuralgia with Otagia*.—Mrs L., æt. 25, consulted me on 5th November. Stated that she had suffered from facial neuralgia, at intervals, for the past six years. The pain was severe in the right temple orbit, anterior auricular and infra-orbital regions, and in both maxillæ. The patient had taken large doses of quinine, etc., but had experienced little benefit. With treatment there was relief in a few seconds. As in the other cases, where all the branches of the fifth nerve were involved, the pain disappeared from the first, second, and third divisions successively. Patient consulted me next day. Pain had recurred in the morning, and this time there was distinct otalgia—a frequent symptom, as I was informed, but which had not been present the previous night. There was again almost instantaneous relief. I then gave the patient directions for self-treatment.

19th November.—I have seen this patient to-day. The pain has recurred on several occasions, but it is not now regarded, as it is relieved immediately on its appearance. The patient says, "The toothache always goes away last."

The above may be accepted as typical, but I have notes of other cases of the same nature, and which have been treated with the same result.

I have treated, and have notes of a considerable number of severe cases of neuralgic headaches, and have invariably favourable results. The following may be taken as examples:—

CASE XII.—*Frontal Cephalalgia*.—Mr J. M., æt. 29, consulted me on 11th October, complaining of above. The pain, which was described as "sickening," was of three weeks' duration, and during that period the patient had only been able to be at work for two days. The expression was dull, heavy, and pained; with treatment there was complete relief in about 30 seconds.

CASE XIII.—*Frontal Cephalalgia*.—Mr J. L., æt. 43, informed me on 16th November, that on the previous Wednesday, 13th November, he was suffering from very severe frontal headache, an ailment from which he often suffered. His brother, Mr R. L., applied the treatment from which his wife (Case XI.) had derived so much benefit. The headache immediately disappeared, and had not recurred.

CASE XIV.—*Vertical Cephalalgia*.—Mr A. B., æt. 20, complained on 9th November of a dull, pressing pain referred to the vertex. It had been felt for over a year, but during the past two months had increased in severity, and often prevented him from sleeping. With treatment he had almost immediate relief. Again consulted me on the 15th October. The pain had returned, but in a modified degree. It again immediately gave way to treatment. I saw this patient in the beginning of November, when he told me that there had been no recurrence.

The following group of cases is interesting, as the neuralgia had followed other pathological conditions from which it was eliminated:

CASE XV.—*Neuralgia following Herpes*.—Miss S. S., a young lady, informed me on 14th October, that in the summer of 1888 she had an attack of herpes—the neighbourhood of the right eye and right side of nose being the area affected. There were distinct cicatricial signs of the disease. With the herpes there had been excessive pain in the same region, often radiating over the side of the face. This lasted for some months, and had resisted all forms of treatment. When I saw her, more than a year after the commencement of the attack, there was still a dull pain in the right temple. It was not severe, but was distinctly present. With treatment there was almost instant relief, and I have not heard of any recurrence.

CASE XVI.—*Orbital Neuralgia accompanying Facial Erysipelas*.—Mr A. P., æt. 47, had suffered from pain in left temple since 27th October; on the 31st a herpetic eruption appeared around the left eye; on the 1st November there was erysipelatosus inflammation of the left side of face generally. When I saw him on the 3rd I found this very marked, and he complained, and was most evidently suffering from excruciating pain, referred to the left orbit, which he said had been present about 18 hours; with treatment the pain disappeared in a few minutes.

9th November.—Patient is recovering from the erysipelas, and there has been no recurrence of the orbital pain.

CASE XVII.—*Neuralgia accompanying Glossitis.*—Mrs C., æt. 40, began to suffer about the 14th September from idiopathic glossitis, of which the symptoms were of the ordinary character. Pain was not much complained of, and the case seemed to be progressing favourably. On Sunday, 22nd September, I was urgently asked to see the patient, who was then suffering from acute pain, mostly referred to the area of distribution of the right inferior dental nerve, but also present in the tongue. There was immediate relief on treatment. The pain recurred once or twice during convalescence, but was immediately arrested by the same treatment.

CASE XVIII.—*Cephalalgia accompanying Tonsillitis.*—Mrs F., æt. 51, had suffered since 28th October from acute tonsillitis. On the 2nd November, when I saw her, the tonsillar symptoms had almost disappeared, but she complained of severe frontal headache, of great pain in the left orbit, and of pain less severe in the right. The pain had been present for some days, but as the patient thought it was a part of the ailment for which she was being treated, she had not mentioned it. With insufflation of chloride of sodium there was complete, but somewhat gradual, disappearance of the neuralgia. Patient got almost immediate relief from the acute pain, but thought that the headache, etc., had not entirely gone until about 20 minutes from the commencement of treatment.

19th November.—No recurrence.

CASE XIX.—*Cephalalgia accompanying Tonsillitis.*—Miss S. H., æt. 25. This case was similar to the above, but the patient complained of severe frontal headache on the first day of the incidence of tonsillitis, 6th November. In this case there was instant disappearance of the pain, with no recurrence.

It early occurred to me that spasmodic asthma would probably be benefited by the same method of treatment, and very soon I had an opportunity of testing effect, and with gratifying success.

CASE XX.—*Bronchial Asthma.*—Mrs L., æt. 24. I was called to see this patient on 2nd September, when I found her suffering from the well-known symptoms of an acute attack of bronchial asthma. There was marked dyspnoea, the respirations being laboured and noisy. On auscultation, sibilant and sonorous rhonchi were heard over both lungs. In all respects the case was a typical one, and the various symptoms need not be detailed. With treatment, there was complete relief from the asthma and all distress in a few seconds, with disappearance, nearly complete, of the auscultatory signs.

3rd September.—I saw the patient about noon, the asthma had returned in a modified degree. Treatment had the same result as before. I then gave directions for self-treatment, and the husband subsequently informed me that the asthma did not again appear until the 6th September, at 6 A.M. It again immediately gave way to treatment.

10th November.—I have seen patient to-day, who informs me that she has had no recurrence.

I have treated other two cases of asthma—one a gentleman, æt. 50, with results almost as satisfactory as those given in Case XX.; and another, an elderly gentleman, where there was a considerable cardiac element in the disease, with little appreciable effect.

I cannot give details of my two unsuccessful cases, because neither occurred in my own practice or district, and I only saw the patients on single occasions. Both were long-standing cases of neuralgia of the fifth nerve, in one case of all its branches, and in the second of the infra-orbital branch. In both cases hypodermic injections of morphia had been often used, and in the second the operation of nerve section had been performed. The only feasible explanation of this failure which occurs to me is, that on the pathological nerve condition, expressed by the neuralgia, there had been superimposed a second deviation from the normal by the morphia, and that the resultant disease was not amenable to this form of treatment. Those who have seen the profound nerve change following morphinomania will grant that this hypothesis may be correct.

In neuroses other than those which I have treated, it is possible that this method of inhibition may be used with success. The first dentition of children is often accompanied by much irritation of the dental nerves, and this gives rise to many of the grave complications attending this period. It may be urged that the cause would be left, but I think that it is demonstrated, that the element of pain may be eliminated from pathological conditions with great general relief. I have already made arrangements for observations of the effect of treatment in a large number of cases of epilepsy in an Institution under my medical care.

IV.—NOTES ON THE USE OF PAPAÏN IN EAR DISEASES.

By R. M'KENZIE JOHNSTON, M.D., F.R.C.S.E., Surgeon to the Ear and Throat Dispensary; late Clinical Assistant, Ear and Throat Department, Royal Infirmary.

BEFORE proceeding to the subject proper of this paper, it will perhaps be well to make some remarks upon Papaïn and the uses to which it has already been placed.

Papaïn is obtained from the juice of the fruit of *Carica papaya*¹ (Papayacæ) by precipitation with alcohol, the albuminous matters being removed by acetate of lead. It is a whitish, amorphous, somewhat granular powder, tasteless, but with a faint odour. It is soluble in water and glycerine, but, as a rule, with a slight sediment. Papaïn is the pure ferment, while the term papayotin is generally applied to the crude commercial powder.

¹ Phillip's *Materia Medica*, p. 753.

Papaïn has been shown to be a digestive ferment¹ of considerable power, resembling in some degree both pepsin and pancreatin. Its chemical properties and uses have been investigated specially by Finkler of Bonn, Rossbach of Jena, Martin, and others. Rossbach² has shown that papaïn will digest 200 times its weight of blood fibrin. It will act in solutions of great concentration, in alkaline, acid, or neutral media. Carbolic acid does not destroy its activity, but slightly retards it. Martin³ finds its action to be the same as that of trypsin, but not so rapid nor so energetic. A strong solution injected into the veins of rabbits produced cardiac paralysis, and a weaker solution seems to favour the multiplication of micrococci in the blood (Lauder Brunton), and great numbers of bacteria develop in substances acted on by this drug. It appears to have no digestive action upon living tissues, such as the mucous membrane of the stomach, etc. The existence of ptomaines, bacteria, or bacilli has been demonstrated to be sometimes present in pepsin and pancreatin, but papaïn, being of vegetable origin, is therefore free from this danger.

The use in medicine of papaïn is of comparatively recent date, and it is only within the last few years that several preparations, such as the Liq. Papaïn et Iridin Co.—a preparation of considerable value—and others, have found their way into the market. For many years the natives of the West Indies have used the fruit of the *Carica papaya* in order to make their meat tender before cooking it. Perhaps the first use in medicine to which it was proposed to put papaïn was to digest off and destroy the false membrane in diphtheria. For this purpose Rossbach applied a 5 per cent. solution every five minutes for some time to the affected throat. Hertz⁴ thus treated ten cases with nine complete recoveries. Kohts and Asch⁵ also treated fifty-three cases, and the solvent action of the drug was clearly demonstrated. Fræntzel, Ewald, Jacobi, and others have tried it, and speak well of the results. Malcolm Morris⁶ recommends it strongly to remove the thickening in chronic scaly eczema and verucca. Butlin has used it for syphilitic and other ulcerations about the tongue and mouth. Dr A. L. Gillespie tells me that he has tried it in sloughing bed-sores, and found that the slough rapidly disappeared, leaving a healthy granulating sore. Internally, alone or in combination, it has been given in dyspepsias and to aid digestion, and Bartholow⁷ recommends it in children as a vermicide to destroy *tænia solium*. M'Bride,⁸ in a paper on Mastoid Operations, suggested the use of pancreatin or papayotin for cleansing the recesses

¹ *Pharmacology, etc.*, by Lauder Brunton.

² *Medical Record*, 1882.

³ *Journal of Physiology*, vol. v.

⁴ *Schmidt's Jahrb.*, 1884.

⁵ *Zeitschrift f. Klin. Med.*, 1883.

⁶ *Brit. Med. Journal*, 1882.

⁷ *Keating's Cyclopædia of the Diseases of Children*, vol. i.

⁸ "Operations on the Mastoid Process," *Brit. Med. Journal*, September 1, 1888.

of the middle ear. The former he has used, I believe, with good results; but the latter, so far as I know, he has not as yet tried. It occurred to me, therefore, about a year ago to experiment with this drug in diseases of the ear, and to see in what cases its use might prove of service.

In chronic suppuration of the middle ear pain is an almost certain indication that the secretion is not getting away freely, and this may be due to the smallness of the perforation, the viscosity of the pus, or to obstruction by growths or by hardened masses of dry pus, debris, or cholesterin. It is well known that if these conditions are neglected there is grave danger that the retained septic pus may lead to an extension of disease, possibly necessitating an operation for mastoid abscess, or even for cerebral abscess. It seems, therefore, evident that anything which can facilitate the cleansing of the middle ear, and that can readily dissolve hard masses of debris, etc., must of necessity decrease the risk of these serious consequences. In papain we have a drug capable, I believe, by its digestive action, of thoroughly cleansing the ear in those cases in which simple syringing is insufficient. I have tried it now in a number of cases, and apparently with most satisfactory results. Of course it is impossible to say that any one of these cases would have gone on to mastoid disease had they not been so treated, but I can say that cleansing of the ear was rapidly effected, and in one or two cases the relief of the pain was most marked.

The following is the way I employ the drug:—15 π of a 5 per cent. solution of papain is dropped into the ear, care being taken that it reaches the bottom of the meatus. If necessary the patient may be made to swallow while holding the nose, so as to draw the fluid into the middle ear. Mindful that bacteria develop largely in fluids acted on by this drug, I only allow it to remain for one hour, after which the ear is syringed out with boracic lotion and carefully dried. This may be repeated as often as necessary.

This plan of treatment seems to me to be specially suitable to old-standing cases where there is only a little thin and very foul-smelling discharge, probably associated with some diseased bone. The following case may be taken as an example:—K. M., a girl, aged nine, has had a discharge off and on for five years; smell from ear very offensive. The meatus contained a little half-dry pus. There was a very large perforation, and some granulations on the posterior wall of the middle ear, which I suspected to be connected with diseased bone. The Eustachian tube was obstructed by adenoids, so that the ear could not drain by it. Various antiseptic lotions had been used persistently and with care, but only with temporary benefit. I ordered papain drops in the manner I have indicated, and continued them for about three weeks, when for the first time for years the ear was found free from smell and discharge, and continued so for some months.

I have also used papaïn in several cases where there was no perforation, but where a firm plug of wax and epithelium had caked together, and could not be dislodged by syringing. The papaïn solution has invariably greatly facilitated the subsequent removal.

It seems likely that papaïn might prove of service in the removal of some of the foreign bodies occasionally met with in the ear, and also in treating otomycosis, but I have not yet had an opportunity of testing this.

In all my cases I have used Finkler's papaïn as supplied to me by Messrs J. Robertson & Co. of Edinburgh. There is another preparation in the market known as Christy's, but of this I have no experience. According to Herschell¹ it has somewhat different properties to Finkler's. It should be noted that the solution does not keep well, and therefore it requires to be freshly prepared every few days. Messrs Burroughs, Wellcome, & Co. make 2-grain papaïn tabloids, which I thought might be useful to make the fresh solution whenever required. I have, however, not tried them yet, as I find the solution made from them is very thick and muddy.

At first I used the papaïn in simple solution either in water or camphor water, but afterwards I inclined to think that it acted better with the addition of some soda, so I have lately been adding five grains of the bicarbonate of soda to the half ounce of papaïn solution.

It seems to me possible that papaïn might be of some service in general surgery to shorten the period of treatment in cases of caries of bone, or to render aseptic long narrow sinuses which contain debris, etc., in which germs hide from antiseptic applications. However, that is merely a suggestion, and one which falls outside my province.

V.—NOTES ON THE NATURE AND TREATMENT OF FLAT-FOOT.

By T. S. ELLIS, Consulting Surgeon to the General Infirmary at Gloucester.

I HAVE myself personally suffered from an extreme condition of flat-foot, the result of an accident twenty-two years ago. My recovery, long since practically complete, was the result of a six-months' application of principles which I had, after anxious study, myself determined. This is my apology for now offering these notes, suggested by Mr Miller's paper in the November number of this Journal.

To relate my own personal case would be to tell an oft-told tale.² To point out wherein I differ from Mr Miller and other writers would be an uncongenial task. I prefer to set forth the guiding principles

¹ *Brit. Med. Journ.*, 1882-3.

² *Lancet*, February 9, 1884, and September 25, 1886. *Brit. Med. Journ.*, June 30, 1888.

which have, for many years, directed my treatment of flat-foot. These I have never before fully formulated.

(1.) The foot is supported not only *in* but also *by* the exercise of its functions. The muscles, which by action move, in action sustain the structure. In early life they also develop the form.

(2.) Ligaments are insufficient to resist tension when continuous or prolonged. On the other hand, intermittent tension promotes their strength.

(3.) Muscles, developed by action, tend to remain taut and firm when not in action, and so, by keeping up continuous pressure, modify the bony contours.

(4.) As failure of muscular support tends to deformity from yielding of ligaments, so a renewal of it, in specially active degree, will renew the form.

(5.) In good walking the heel is raised from the ground by the calf muscles and by the long flexors, acting, with the peronei and tibialis posticus, at the same time.

(6.) While the long flexor muscles press the toes against the ground, they tend to lift up the heads of the metatarsal bones (forming the anterior pillar of the arch), which thus dance, so to speak, on tight ropes. Injurious pressure against the ground is thus prevented, when the weight is borne by the anterior pillar only.

(7.) This same action relieves all strain on the ligaments beneath the tarsus while drawing the two pillars towards each other and throwing the arch upwards, just as tightening a bow-string increases the bending of the bow.

(8.) In flat-foot the indication is to promote this bow-string or tie-rod action by vigorously springing to tip-toe both as a special exercise and in walking. Avoidance of continuous strain on the ligaments, as in careless standing, is also indicated.

(9.) While frequent rising to tip-toe during any necessary standing is desirable, prolonged standing, even in the tip-toe position, is not desirable. In this latter case the muscles are wearied by continuous contraction, and the ligaments lose the benefit of intermittent tension. It is the act, the movement, of rising to tip-toe that is beneficial.

(10.) As in order to have free movement upwards the heel must first completely descend to the ground, heels to the boots should be avoided.

(11.) The mechanism of the foot is best adapted for a level surface. The sole of the foot, therefore, must not be thickened on the inner side, as sometimes advised.

(12.) As the free bending of the foot necessary for efficient function takes place only, or mainly, at the oblique line of the metatarso-phalangeal joints, a thick sole is altogether inadmissible.

(13.) The short flexor muscles, acting with the abductors and adductors, play an important part in holding down the proximal

phalanx of the first and the middle phalanx of each of the smaller toes, while the long flexors act on the terminal phalanges.

(14.) The principal object of the arch being, as I contend, to protect these sole muscles from pressure, steel springs, cork or other pads, which press against them are to be scrupulously avoided.

(15.) The great toe having its natural plane of movement obliquely downwards and inwards (away from the others), it is important that all interference with this lateral movement should be avoided, otherwise the action of its flexors may be suspended.

(16.) In such case the bow-string or tie-rod effect of the action of the long flexor on the tarsal arch is lost. In this regard I attach nearly as much importance to proper socks as to proper boots.

(17.) As the arch is most pronounced and best adapted to sustain weight, and as the muscles for raising the heel and pressing down the toes act best, when the toes are directed slightly inwards, the toes should never be turned outwards in standing or in walking.

(18.) Free movement of the feet being impossible when the body rests on their outer edges, standing or walking in that position is not to be permitted.

(19.) As muscles when tired tend to as little action as possible, and so to throw extra strain upon the ligaments, all fatigue is to be avoided.

(20.) Inspiration, straightening of the spine and knee, throwing of the arms upwards, and of the head backwards, are all of them movements instinctively associated with the act of rising to extreme tip-toe. All these tend to throw the body, as a whole, into good position. Therefore, any exercise or form of work which involves springing upwards with every inspiration, coming downwards with every expiration (such as wood-cutting), should be encouraged. All exercise or work which involves continuous effort (such as holding up weights) is to be avoided, especially if it involve the squatting position.

Thus, as I contend, good walking and many forms of work are not only compatible with the cure of flat-foot, but may be used as a direct influence to that end. They who walk well will never be flat-footed, and they who are flat-footed—I am not now speaking of cases of bony ankylosis in the deformed position—may, by walking well, be cured. I *know* what took place in my own foot, and I have seen cases which, as I have reason to believe, would have been the subjects of osteotomy had they fallen into the hands of more enterprising surgeons. I have seen those cases get perfectly well, and yet the patients have not left their occupations for a single day.

If it could be shown that muscular action is not necessary to maintain, nor potent to restore when destroyed, the flattened arch, then, as I should have to admit, all the physiology of the feet which I have laid down in my book,¹ produced after many years of careful study, would be worthy only of contemptuous disregard.

¹ *The Human Foot*. Churchill, 1889.

If, however, surgeons will disregard that which, in my view, is the true physiology of the feet, and treat flat-foot by propping it up with a pad or spring; and if others prefer to readjust it by cutting out a bone, as one too many, or by fixing that which should be a joint by destroying the joint surfaces; in such cases I can only say—let it not be called a cure.

John Hunter, speaking of cancer, said¹—“For what I call a cure is an alteration of the disposition and of the effect of that disposition, and not the destruction of the cancerous parts.” If then, as a consequence of defective function, we have a deformity, and if, by vigorously renewing the function, we remove at once both the deformity and the disposition thereto, that is a cure indeed. Such result in cases of flat-foot I have, over and over again, had the satisfaction of seeing, when I knew that no remedial treatment had been used other than to restore the defective function by proceeding on the lines which I have endeavoured to indicate.

VI.—HEALTH IN HANDWRITING.

By ALEXANDER CARGILL, Edinburgh.

PERHAPS no evidence is more unreliable than that of chirography when an attempt is made by its help to determine what is the moral or physical disposition of the penman. And yet, in spite of many obvious difficulties that must necessarily ever confront him, the expert in handwriting may undertake to define—and that simply by means of such data as supplied, for instance, by a few strokes of the pen—what that moral or physical disposition actually is, and what are its chief features and characteristics. For, though nothing probably is more at the command of a writer of even the most ordinary skill than that little, subtle instrument, the pen, yet the very ease and simplicity wherewith its master can make it do his bidding, tends almost automatically, in the evolution of his hand characteristics, to the certain unfolding and disclosure of his personal identity. Thus, one of the commonest rules for the expert's guidance—a rule which, of course, has its exceptions—provides that an individual of, say, strong muscular physique should write in a bold, heavy style of penmanship, while a person who has little or no muscular grit to boast of should exhibit a thin, weak, and featureless style that might be supposed to correspond to his physique. All caligraphy does not, of course, come under the application of this general principle; but in nine out of every ten instances of what may be termed the “educated” style of handwriting (as distinguished from “illiterate” handwriting, which usually has no features about it whatever), it is perfectly possible for an expert by its means to define with considerable precision the physical characteristics of the writers. Not only is it possible to do this, but even the age of the penmen may be ascertained within at least a given cycle.

¹ Quoted by Sir Spencer Wells in his Morton Lecture.

Here, for example, is a specimen of the caligraphy of a gentleman, once well known in the religious world, just arrived at his eightieth year (see Fig. 1). The writing is highly characteristic of the writer's mental force and subtlety, but the evidences of age and senile debility are strikingly apparent. These are to be observed, firstly, in the *tremor* of the pen strokes throughout; secondly, in the *attenuatedness* of the letter formations, betokening a high degree of physical feebleness such as only an advanced age might have to cope with; and, thirdly, in the almost entire absence of dots over the "i's," indicative of that disregard for caligraphic form characteristic of extreme age. Contrasted with the chirography of a man, say, in the prime of life (see Fig. 2), and accustomed to a frequent use of the pen, the specimen shows every possible caligraphic indication of old age in the writer of it, and bears ample evidence of his octogenarian feebleness.

But in considering the subject of chirography and its hygiene, perhaps its chief evidential value is to be found in its application to cases where mental disease exists,—its value, that is to say, in helping the specialist to determine so far the nature of the disease, and even its stage of progress. So little regard has hitherto been paid to the hygiene of handwriting (which, by the way, is perhaps more deserving of the physician's attention than the profession generally might care to admit) that, even in cases of insanity, its value is often reckoned of small account in forming opinion upon them. One or two writers have certainly not altogether ignored the subject in their works on mental philosophy and mental diseases. Clouston, Tuke, Bicknell, and others, all acknowledge its importance as a factor in diagnosing insanity; but none of these specialists have yet given the subject of the chirography of the insane that position in the study of the science of mental diseases which it really deserves, but to which, it is hoped, it may some day attain. Nathaniel Hawthorne is reported to have said, writing on a branch of this subject, that "there are temperaments endowed with sympathies so exquisite that, by merely handling an autograph, they can detect the writer's character with unerring accuracy, and read his inmost heart as easily as a less gifted eye would peruse the written page;" and if, as the elder D'Israeli said, "the handwriting bears an analogy to the character of the writer, just as all voluntary actions are characteristic," the value of the evidence of the handwriting of the insane as bearing on the nature and progress of their affliction is worthy of greater consideration than it has yet received.

It is deeply interesting to observe some of the characteristic vagaries of the handwriting of persons considered to be insane. From an analysis of the chirography of a large number of such persons, abundant evidences of their mental unevenness is, generally speaking, the invariable result. Of course, such evidences vary considerably in value, according to the character and progress of the disease. Some examples may be more pronounced and decided

FIG. 1.

I anticipate a great pleasure
in commencing with these 'Thoughts'
on their own merit. And not the less
because of the numerous associations
with which they are surrounded. Every
thing, and many very many persons are
dear to me who in Etruria, and not a
few who are gone. I am looking on to
the gathering of the great Immortal, and
hope to meet you & join in the throng.

Specimen of the Handwriting of a Gentleman in his eightieth year.

FIG. 2.

Speak honestly I do not
like them all — I am
especially hostile to
your Scotch, and would
advise you to direct the
power you undoubtedly
possess into an English
Channel.

Specimen of the Handwriting of a Gentleman in the prime of life and vigour.

FIG. 3.

~~First of all~~
at once see the
Medical Exam-
most important
Instructions (x)

Specimen of Handwriting of Person suffering from Cerebral Disease.

FIG. 2.

Speak honestly I do not
like them all — I am
especially hostile to
your Scotch, and would
advise you to direct the
power you undoubtedly
possess into an English
channel.

Specimen of the Handwriting of a Gentleman in the prime of life and vigour.

FIG. 3.

~~Presently~~
at once see the
Medical Bureau -
most important
Medical Bureau

Specimen of Handwriting of Person suffering from Cerebral Disease.

FIG. 4.

I
had intended to
contest Brewster
- upon - Iqne, against
one of the sitting
members who was
only elected last
year, for the first
time,

Specimen of Handwriting of Person suffering from Cerebral Disease
(earlier stage).

Fig. 5.

Dear Sir

Much of the insanity in the country is
traceable to the abominable practice of Publishers,
Journalists, & Newspaper Publishers! _____
amongst the number - using double inverted commas
where only single ones are required.

Normal Healthiness in the Handwriting of an Insane Person.

FIG. 6.

The one only cause of Insane insanity is Fault in the Mesmeric Power, although this is not the time for me to explain the reason why, and you can examine the matter for yourself. Well, there is just one thing wanting to give my fellow sufferers such fault in myself as would make them to set their testimonies at defiance, and that is my recognition by medical science as the discoverer of the true source of their afflictions, and my recognition by the Physic as the discoverer of the only mode of baffling all the imaginations and misadventures of the two-headed Science of Rome. For at the present it is enough that medical science should give me a sub-: stantial proof of its confidence in the shape of a professional retaining fee as its detection which would leave it to my choice whether I am to remain

Almost Normal Healthiness in the Handwriting of an Insane Person. (Traces of Insanity can be discerned with care.)

FIG. 7.

My darling future if
I hope darling
to see you this day -
We shall be married
darling this afternoon
by declaration. I
hope you have given
warning
Ever your most
loving future husband

Specimen showing decided Evidences of Insanity.

Fig. 8.

The money too for my
maintenance in your
Asylum, was advanced
to my mother in stamped
directed envelopes, which
came by post, but from
whom no one knows.
These two facts speak
for themselves!

Specimen showing decided Evidences of Insanity.

than others, but, as a rule, all are more or less suggestive of the abnormal mental disposition of the writers. For instance, in the handwriting of persons afflicted with that hopelessly incurable phase of insanity which is the result of cerebral paralysis (as distinguished from the handwriting of those suffering only from the milder forms of mental disorder, such as melancholia, delusions, or acute mania), the evidence not only of the existence of the disease, but also, as has been indicated, of its stage of progress, is remarkably apparent. Accordingly, the handwriting of paralytic and even epileptic subjects possesses a pathological value to the expert in mental diseases which that of insane persons, otherwise classified, does not possess. In addition to other tests which the physician may employ in his diagnosis of any particular case, that of the unhealthiness, so to speak, of the patient's handwriting will generally be found to be of great usefulness in enabling him to arrive at his conclusions. In the subjects referred to, besides the palpable tremor of the pen motions, which, however, are very common even in the handwriting of persons enjoying the best mental and physical health, there is a noticeable *hesitancy* in the formation of the *initial*, and often of the *final* letters of words, which is indicative of that state of utter nervous *incompactness* or *attenuatedness* of persons suffering from cerebral mischief. These symptoms are sometimes so pronounced that the handwriting in which they are seen is little better than a *scrawl*, such as might suggest the *rudimentary efforts of a child* (see Fig. 3). And in cases where that occurs the disease is probably far advanced and beyond repair; but, otherwise, much depends in forming an opinion as to the precise nature and progress of the disease, if any doubt thereanent exists, of the previous chirographic power of the patient. It will usually be found, on inquiry, that persons suffering from this subtle form of insanity were never, as a general rule, very proficient with the pen—that is to say, clear, bold, and strong caligraphy was never with them a strong point (see Fig. 4).

Yet, even in cases of paralysis, where sense has not suffered to that extent as to bring the sufferer within the category of the insane, the foregoing features, especially that of the hesitancy in forming the initial and final letters, not unfrequently differentiate the handwriting. Often, however, especially when the stroke has been a severe one, all physical aptitude for writing will cease, even though the mental powers are apparently unimpaired.

When placed side by side of the handwriting of persons in sound mental health, it is sometimes a matter of no ordinary difficulty for the expert to detect the existence of insanity by means of chirography. As has been indicated, the difficulty is increased when the insanity is of one or other of those milder types already referred to. The composition *per se* will, of course, readily betray the mental state of the penman; but, omitting the madness of the matter, the chirography may be of such a normal character as to pass muster as that of a healthy-minded person, while he is at the

same time hopelessly insane. One or two specimens bearing out this are submitted.

In the first (see Fig. 5), and keeping out of view the amusing nature of the context of the letter, the penmanship has every appearance of mental health, and indicates, among other excellent traits of character, order and method, exactness, decision, strength of will, etc.; and yet the writer of the epistle is, we are assured, incurably mad, his hapless condition having been brought about partly by a long course of indulgence in intoxicants, and partly by a hereditary tendency to insanity.

In the next specimen (see Fig. 6) a very extraordinary degree of caligraphic skill is exhibited by an insane person. Here, too, the evidence of insanity as supplied in the handwriting is almost totally wanting, or at least is so obscure as to be well-nigh undetectable even by the expert. Yet a madder man was never confined within the walls of a sanatorium. His insanity, however, is purely of the delusional type, having assumed the absurdly grotesque form of an idea that the seat or centre of, what he terms, mesmeric electricity lies in the great right toe of the not very robust occupant of the chair of Saint Peter!

Still, in the specimen here shown, there is a tendency, not quite fully pronounced yet, however, to *drag* his pen—a tendency betokening a weakness, which may be purely mechanical and local to the fingers or wrist, or which may be (and probably is) indicative of incipient paralysis, a disease often coexistent with simple delusional insanity. But such a tendency may be observable in the handwriting of scores of people both mentally and physically sound. If not a symptom of insanity or impending paralysis, it is an indication of bodily infirmity, weak nerves, or age. In the present instance there is no doubt the tendency to drag the pen is due to incipient paralysis. When subjected to microscopic examination the handwriting shows this to a remarkable extent. Its ordinary appearance betrays but little evidence of the existence of anything abnormal; and when it is added that much of this unfortunate individual's time is spent daily in penning similar missives, some of which are of extraordinary length, it would hardly be a matter of surprise if some day, sooner or later, he should be seized with a serious attack of writer's cramp, if, indeed, with no graver trouble.

Many other specimens of the normal handwriting of the insane might be given, but these must suffice in the meantime, to make way for one or two specimens where the hapless condition of the writers seems as plain and palpable as a pike-staff.

Here is one written, as the bold, dashing, forceful letters indicate, by a lunatic of great physical strength and grit—a source of constant anxiety to his keepers (see Figs. 7 and 8). Ignoring for the moment the substance of the writing, the insanity looks out, so to speak, from every loophole, and seems to meet one at every turn of the pen. The penman's mental stress and strain are striking to

witness. His hurry is great—pathetic; there is no time to pause—he must *perforce* dash off two, and sometimes three words together without a stoppage, as if the demon within his brain had spurred him on at break-neck speed, until his effusion is finished and delivered, and his mental passion satisfied for the time; because he will in all probability dash off a similar epistle on the morrow, and the next day, and the next again, and so on until the fire exhausts itself or seeks another means of escape.

One of the most common features of the handwriting of insane persons may now be indicated, *i.e.*, in the frequent use of unnecessary capital letters. This trait does not, of course, suggest any lack of education, for, in most of the examples we have seen, the writers have been persons educated much above the average. It rather indicates a morbid habit of emphasizing some particular idea which has taken the reason prisoner,—symptomatic of that condition of mental unrest which cannot be satisfied, as it were, with anything but *capital* ideas in thought or speech, and capital letters in writing.

A very prevalent lunacy among females takes the form, as is well known, of an hallucination that they are empresses, queens, princesses, etc. It is only natural that their delusions should sometimes betray themselves in the handwriting; there, at least, they are harmless enough, even though certain words are now and then seen to be flanked and guarded, so to speak, by ominous-looking crosses and dagger-shaped signs, and such like emblems of majesty and power. Experts in mental science are more or less familiar with these specimens of insane chirography; and were there no other indications of insanity in the writers of them to suggest not only the *class*, but the *degree* of the existing mental mischief, these of themselves are invariably of the highest pathological value, and are oftentimes the very best epitome or history whereby obscure cases of insanity may be studied.

VII.—CYST OF THE POSTERIOR EXTREMITY OF THE INFERIOR TURBINATED BODY.

By REGINALD HORSLEY, M.B.

(Read before the Medico-Chirurgical Society of Edinburgh, 4th December 1889.)

WHEREVER a glandular secreting surface exists, should there be any obstruction to the escape of the products of secretion, a cyst from retention may result, provided that the walls of the cavity be capable of enlargement, and that tension be not so great as to check secretion altogether; and since the mucous membrane lining the lower or respiratory nasal tract, and, more particularly, that covering the posterior part of the inferior turbinated body, is thickly studded with the orifices of numerous mucous-forming glands, it follows that

there is no reason why retention cysts should not occur in this as well as other regions of the body.

As a matter of fact, however, while the possibility continues to exist, the actual occurrence of such cysts upon the posterior extremity of the turbinated body is so unusual and infrequent as to remain unnoticed in the standard works upon diseases of the nose. Moreover, it would seem—as far, at least, as my knowledge goes—that even among observers whose works have not taken a collected form, isolated instances of this condition have not, with one exception to be presently noted, been placed upon record. This fact alone, apart from the reflex neurosis which existed along with, and as a consequence of the cyst, justifies, I think, the publication of a case which came recently under my notice.

History of the Case.—Towards the close of July 1889, Miss B., aged 50, consulted me for the first time. She complained of a sensation of dryness at the back of the throat, an occasional feeling of obstruction at the back of the nose upon the right side, and asthma, which latter affected her, as a general rule, at night. It is important to note that this feeling of obstruction was not present upon the occasion of the patient's first visit.

Family and personal history were good, as was the patient's general health, with the exception that she occasionally suffered from attacks of rheumatic gout. About five years ago there was a tendency to breathlessness; but as this soon passed off, and seems to have been associated with slight gastric disturbances, it has no material or direct bearing on the present aspect of the case.

The actual starting-point of the disease seems to have been about the end of April 1889, when what was thought to be a "dry cold" was noticed. This affected particularly the posterior part of the nose, which felt, to use the patient's own words, "as if there were no moisture in it." Towards the middle of May the sensation of dryness extended to the pharynx, and about the end of the same month the patient became very nervous and fearful, owing to the fact that she constantly awoke during the night, or very early in the morning, with a sense of suffocation. This symptom went on increasing to such an extent, that at last the patient actually dreaded to go to sleep in the recumbent posture, and so began about this time the practice of sleeping propped up by pillows, whereby the symptoms were alleviated, though not entirely caused to disappear. The dryness of the pharynx and naso-pharynx, and the feeling of obstruction in the nose, were always more marked in the morning, and on this account, I suppose, the patient was advised to snuff the water she washed in up her nose. This she did, to her own intense discomfort, and so, after a time, abandoned the practice.

Throughout the day the sensation of stoppage of the nose passed off more or less, but during the months of June and July the nocturnal terrors and sudden wakings persisted, and increased in frequency and intensity, the sleep function becoming seriously disturbed by asthmatic attacks of varying force and duration. The asthma was

at times so serious as to render it impossible for the patient to sleep at all. Indeed, when once awake she struggled to remain so, being afraid to drop off, lest there should be a repetition of the horrible sense of suffocation.

On examination, the pharynx was found to be somewhat congested, as were the posterior extremities of the inferior turbinated bodies, that on the right being slightly enlarged as compared with its fellow on the left side. The congestion, though most marked at the posterior extremities, was evident along the whole length of the middle and inferior turbinated bodies, more particularly on the right side; but there was no undue swelling, nor was there the slightest appearance of polypus or any other tumour. In the naso-pharynx slight but distinct symptoms of catarrh were present, and some yellowish masses of mucus could be seen adhering to the back and sides of the cavity.

The diagnosis of post-nasal catarrh passing into a chronic state, with congestion of the turbinated bodies, and some pharyngitis having been established, the patient was told to paint the pharynx and naso-pharynx with Mandl's solution—

R Iodi, ... grs. vj.
Potass. iodid., . . . grs. xij.
Ol. menth. pip., . . . ℥ v.
Glycerin, ... ℥j.

Solve and misce: pigment. ft.

Signet—To be brushed on the back of throat and behind the palate once daily for the first week, and once every other day for the second.

To relieve the congestion of the nose an alkaline wash was prescribed—

R Sod. bicarb.,
Sod. bibor, ... āā grs. vij.
Sod. chlorid.,
Sacchar. alb., ... grs. xv.
Misce: ft. pulv.

Signet—One powder to be dissolved in a tumbler of warm water as a wash for the nose. To be used twice daily.

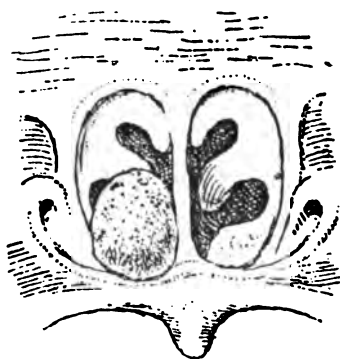
In addition to these local measures, Fellows' Syrup of Hypophosphites was prescribed as a general tonic. Should this treatment fail, I determined on the patient's return to recommend the application of the galvano-caustic point to the posterior extremities of the turbinated bodies. As it happened, however, there was no occasion to resort to this remedy.

On 19th August the patient returned, and at once mentioned, what may be stated *en passant* as an interesting fact, that after three days she had left off taking the Syrup of the Hypophosphites, as it had brought out a red rash, accompanied by uncomfortable

itching upon her legs, arms, and wrists. She then asked me if the medicine contained quinine—as once before, when that drug had been prescribed, the same symptoms had appeared. Shortly after discontinuing the medicine the rash subsided. The action of quinine is reported to have been “occasionally attended by the appearance of an eruption on the skin” (Bartholow), and this instance is interesting as bearing out the statement.

The patient further stated that the dryness in the throat was much relieved, but that at times the feeling of obstruction became absolute upon the right side; this was the case during the visit. Further, the asthmatic attacks had increased in severity, the previous night being described as “a fearful one.”

On examination, the pharynx was found to have recovered its normal appearance, the naso-pharynx also looking healthy and showing no trace of hypersecretion. On the posterior extremity of the right inferior turbinated body, however, appeared a sessile tumour, which looked extremely like a mucous polypus. Globular in shape as far as could be noted, pale in colour, and with no appearance of vascularity, the tumour, as shown in the illustration,



extended upwards so high as to block almost entirely the middle, and completely the inferior meatus. Inferiorly and posteriorly it projected somewhat into the naso-pharynx, while anteriorly it impinged upon the middle and lower thirds of the septum. The surface of the swelling was granular. The sudden appearance of a tumour in a position where three weeks before none had existed, as well as the size it had attained in that time, excluded the idea of a mucous polypus, and a

digital examination seemed to be the best way of accurately gauging the nature, extent, and exact attachment of the growth.

On introducing the finger into the naso-pharynx, the tumour was felt to be circumscribed, of uniform soft consistence, and slightly resilient to the touch. Gentle pressure caused expansion in all directions, and the diagnosis arrived at was, that the tumour was probably a cyst containing fluid. This was suddenly verified a moment later, for the tumour gave way under the touch. The result was surprising. There was a simultaneous discharge of clear, slightly blood-stained fluid through the nostril and into the back of the throat; the patient expectorated into her handkerchief a few shreds of membrane, and declared herself well. The relief was instantaneous, and the disappearance of the cyst complete; for on subsequent examination with the rhinoscope no evidence of its existence remained, save a slight excoriation of the somewhat swollen extremity of the inferior turbinated body, where the finger

nail had come in contact with the mucous membrane. After this very satisfactory, if somewhat unexpected result, Mandl's solution was applied to the site of the cyst, and a course of the same prescribed for the following fortnight. At the end of this time the patient returned, perfectly free from nasal obstruction. The catarrhal state of the pharynx and naso-pharynx had entirely disappeared, and there had been absolutely no recurrence of the asthmatic paroxysms. Since that time, and up to the date of publication, the patient has remained perfectly well.

It would be interesting to know what was the condition of the patient's nose prior to her first visit. The asthma undoubtedly existed, but the same cannot be said of the cyst, which formed in the interval between the first and second visits. The post-nasal catarrh and the congestion of the turbinated bodies would be quite enough, under certain circumstances, to account for the asthma; but, at the same time, it is possible that, before I saw the patient, a cyst had formed and disappeared, causing during its persistency the sensations described by her; while the serious aggravation of symptoms which occurred before her return for the second time was due to the formation of another cyst of most probably larger dimensions than its predecessor. The probability of the existence and spontaneous evacuation of a former cyst is heightened by the fact, which I omitted to mention before, that the patient stated that, some time before her first visit, she had experienced the sensation of "something giving way at the back of her nose," which sensation was followed by some abatement in the severity of the symptoms.

As regards the asthma itself, the fact of its disappearance after the operation is evidence enough of its reflex origin. Into the large question of nasal reflex neurosis I do not intend to enter, but I think it will be admitted that this case affords a typical example of such neurosis starting from a diseased spot in the nose, accurately defined to be, in the present instance, the posterior extremity of the inferior turbinated body.

But while not going deeply into the subject of nasal reflexes, nor committing myself to an adherence to any hypothesis in connexion with them, I may be permitted to state two views which are advanced to explain how, given a diseased area in the nose, and a neurotic subject—a constitutional state insisted on as essential by the great mass of authorities—the asthmatic paroxysm may be generated.

Of the one view, Sajous gives such an admirably succinct account that the passage may well be quoted in its entirety. He says, "The respiratory region which includes all the surfaces below the olfactory, is under the control of vaso-motor nerves of the sympathetic system, and is exceedingly sensitive to local or peripheral irritating causes. This sensitiveness, however, does not reside in the vaso-motor supply, which is only a secondary factor in the production of turgescence, but in the terminal filaments of

the sensory nerves distributed over the surface of the membrane. . . . Commencing with the posterior area, we find that the membrane of that location is supplied by several branches of the spheno-palatine ganglion, which enter the back part of the nasal fossa by the spheno-palatine foramen. Besides its motor and sensory roots, the spheno-palatine ganglion possesses a sympathetic root, which is derived from the carotid plexus through the vidian, thus forming a well-defined connecting link between the nasal membrane and the sympathetic system.

"In the production of the reflex symptoms peculiar to the posterior area, cough and asthma, the impression is consequently transmitted from the posterior end of the inferior turbinated bone, or the corresponding portion of the septum, to the spheno-palatine ganglion; from that to the carotid plexus, which is closely connected with the posterior pulmonary plexus, formed not only by the branches of the sympathetic, but also by some from the pneumogastric, and finally to the ramifications of the air tubes through the ultimate filaments of the former, which are lost in the bronchial mucous lining."

As the spheno-palatine ganglion thus unites so closely the nasal and respiratory tracts, it follows, accepting the above statement as correct, that the irritation caused by the pressure of the cyst upon the septum, being transmitted along the course described, was able to set up the train of symptoms already mentioned.

As the exponent of another view, I shall quote Dr M'Bride, whose opinions are given in the January number of the *British Medical Journal* for 1887. If I understand the matter aright, Dr M'Bride predicates the existence of a certain centre which may under some circumstances be rendered unstable by irritation originating in the nose. Briefly put, this view is expressed as follows:—"I have admitted that, in a certain proportion of cases, nasal disease is the actual factor in the production of certain neuroses, and, for simplicity's sake, I shall take, as an example, asthma. The meaning of this admission is that I believe that, under certain circumstances, a stimulus carried along the filaments of the fifth nerve which supply the nares, may, by overflow, reach the area corresponding to a certain centre, and there set up a molecular change which results in the symptoms of bronchial asthma. Observe that the very admission that there exists a form of asthma which owes its origin to nasal disease carries with it the admission that stimulation of the nasal nerves may cause stimulative, or, what is probably the same thing, molecular changes in the 'asthmatic centre,' if I may be allowed the term. If, then, this centre be in a state of what we may call stable equilibrium, it is conceivable that irritation of the nose may make it unstable." Dr M'Bride, however, goes further, and argues conversely that if this centre be unstable, "it is also conceivable that stimulating the nasal mucous membrane may, by inducing a changed molecular condition, render it stable." And therefore "cauterization of the

nasal mucous membrane may prove useful in certain cases of asthma due to central nervous causes."

Whatever the mode of transmission, the neurotic constitution seems to be necessary to the existence of the capacity for such a reflex, if I may put it so; but in this connexion Joal of Mont Dore states that nasal reflexes are principally developed in arthritic individuals, and it will be remembered that the patient whose case has been described showed evidence of the gouty constitution.

Interesting though it would be to quote other examples of the formation of cysts in the region under consideration, information on the subject is, as I have said above, either non-existent or excessively difficult of access. Such authorities as Voltolini, Schech, Moldenhauer, and Sajous are practically silent on the subject, referring in merely general terms to the occurrence of cysts in the process of post-nasal catarrh, or more especially to their development in the pharyngeal bursa of Luschka. Dr M'Bride, in whose department in the Royal Infirmary it is my privilege to work, agrees in admitting the exceeding rarity of the condition, and states that in his extensive practice he has never yet met with it. At the same time, he has been good enough to give me details of a case which came under his observation, and which affords an example of a cyst, apparently in connexion with the turbinated bodies, though the position and circumstances attending the growth were different to those in my own case.

Two years before he consulted Dr M'Bride, the patient noticed a swelling just outside of and under the right *ala nasi*. When Dr M'Bride saw the patient the tumour was manifest in the position noted, being covered with distended veins which coursed over its surface. The mouth was normal, but examination of the anterior nares showed marked bulging under the right inferior turbinated body, almost conveying the impression of a second bone in that region. To the touch the tumour was elastic, and fluctuation was readily detected. An exploratory puncture allowed much serum, tinged with blood, to escape; but next day, the cyst having refilled, presented the same appearance as before. Evacuation was again practised, and it was intended to inject iodine or some other irritant, but, as the patient did not return, it is probable that the cyst did not again refill.

Voltolini, speaking of affections of the pharyngeal bursa, mentions the occurrence of cysts in that organ; and Tornwaldt of Dantzig calls attention to the same phenomenon. Moldenhauer, too, briefly observes that in the course of chronic post-nasal catarrh cystic growths may occur; while Sajous devotes but a few lines to the condition—adding, however, the information that the removal of these cysts is not followed by recurrence.

The only case, as far as I can discover, which at all resembles the one I have described is that recorded by Dr George Johnson of London. In the first instance, I am indebted to Dr M'Bride for telling me of this case; and in the second, to Dr Johnson himself,

who, when I wrote to him on the subject, most kindly sent me a reprint of certain articles which appeared in the *Lancet* for 1864, and which contained an account of a case of cyst of the posterior extremity of the middle turbinated body. In Dr Johnson's case the obstruction was complete, the right nostril being altogether occluded posteriorly, though matters had occupied two years in reaching this pass. The exciting cause was an ordinary cold in the head, which is described as severe, and which possibly originated a post-nasal catarrh, though when Dr Johnson first saw the case the surrounding parts were found to be healthy. As in my case, the diagnosis was verified by the removal of the tumour, which, however, was not effected in the same way. Mr John Wood, a then colleague of Dr Johnson, introduced a slim curved forceps through the anterior nares. On grasping the tumour, and drawing it forward, it suddenly collapsed, allowing a quantity of glairy fluid like white of egg to escape, and the diagnosis of a cyst was thus established. Here, too, the destruction of the tumour was followed by instant, absolute, and permanent relief of all disagreeable sensations, which in the case of Dr Johnson's patient seem to have been local, and limited to the affected area.

Such an enormous amount of proof has accumulated to show that asthma not infrequently takes origin in diseased states of the nose that I should have hesitated to add another item, were it not for the interesting pathological state which acted as the cause in the case of Miss B.,—a state interesting enough on account of its effect upon the patient on the one hand, and the rarity of its occurrence on the other.

The drawing of the cyst was made for me partly from Nature, partly from description, by Mr James Bayne.

Note.—Since the above was written, I have received a copy of the *Philadelphia Medical Times*, in which Dr Carl Seiler speaks of cystic polypi in the upper air passages. The author remarks upon the rarity of this condition, stating that "besides the one recorded by Dr Lefferts, one other case only is reported in the literature on the subject." Dr Seiler further remarks, that he has met with four cases, of one of which—cystic degeneration occurring in a fibrous polypus—he gives a condensed account.

I regret that I have been unable to obtain the published account of Dr Lefferts' case.

LITERATURE.

1. BARTHOLOW.—*A Practical Treatise on Materia Medica and Therapeutics*. London, 1884.
2. SAJOURS.—*Lectures on the Diseases of the Nose and Throat*. Philadelphia, 1889.
3. M'BRIDE.—"Lecture on Nasal and Naso-pharyngeal Reflex Neuroses," *British Medical Journal*, i., 1887.

4. JOAL.—*On Nasal Vertigo: Memoir read at French Congress of Laryngology*, 1887.
5. VOLTOLINI.—*Die Krankheiten der Nase*. Breslau, 1888.
6. TORNWALDT.—*Ueber die Bedeutung der bursa pharyngea für die Erkennung und Behandlung gewisser Nasenrachenraum-Krankheiten*. Wiesbaden, 1885.
7. MOLDENHAUER.—*Die Krankheiten der Nasenhölen*. Leipzig, 1886.
8. SAJOUS, *loc. cit.*
9. G. JOHNSON.—“The Laryngoscope: Directions for its Use, and Practical Illustrations of its Value in the Diagnosis and Treatment of the Diseases of the Throat and Nose,” *Lancet*, i., 1864.
10. CARL SEILER.—“Report on Laryngology and Diseases of the Nose,” *Philadelphia Medical Times*, February 1884.

VIII.—FERRÁN'S ANTI-CHOLERA VACCINATION.

By JOHN BOYD, M.D., Slamannan.

PART I.

IN 1885 I had the privilege of translating a notice of the discoveries and labours of Dr D. Jaime Ferrán y Clua, then of Tortosa, and now of Barcelona, which appeared in vol. xxxi, p. 141, of the *Edinburgh Medical Journal*, and which gave a clear verbal exposition of the views of the eminent Catalan who is taking an important share in the scientific and social *renaissance* which is now in active progress throughout the Catholic kingdom. A few months ago I enjoyed an interchange of letters with him, and was favoured by receipt of a series of his books and pamphlets published in Valencia, Seville, and Barcelona, the study of which has furnished a delightful occupation during this summer. Along with them was a memorial presented to the Deputacion Provincial de Sevilla by Dr D. Leopoldo Murga, who was employed by that corporation to examine and report on the “profilaxis Ferrán” during the epidemic of Asiatic cholera which raged in the south of Spain during 1885. From this we learn that, born in Corvera (Tarragona) in 1848, the son of the local physician, Dr Juan Ferrán, he displayed great aptitude for study at the Institutos de Tortosa y Tarragona, where he took the degree of B.A. with honours, was devoted to the medical profession, and distinguished himself during his career, which terminated in 1873.

For electrotherapia and eye diseases he showed a special predilection, and speedily became noted for his abilities in that department. He was then appointed Medico to the Hospicio of Tortosa, and discharged the duties of that office with the utmost zeal and intelligence. Exceptionally active and gifted, he latterly entered with enthusiasm into the micrographic studies on the lines of M. Pasteur, introducing the vaccination for anthrax among cattle,

previously unknown in Spain, and obtained the prize from the Royal Academy of Spanish Medicine for his book on the Pathogenic Action of Bacteria in Infective Maladies. In the midst of his strictly professional occupations, in combination with his friend and assistant Dr Pauli, he made a new discovery in photography—that of bromidized paste plates; they were the first to utilize the micro-telephone between Tarragona and Tortosa, which, unprotected by patent, now bears the name of a stranger, Munro, who published about it a year and a half later than these two illustrious natives.

In 1883, cholera having appeared in Egypt, the French and German Governments, fearing its arrival in Europe, sent a scientific commission to the Nile valley to study it there—disciples of Pasteur representing the former, and Koch the latter. He remarked particularly in the intestinal mucous membrane of the victims of this terrible malady the presence of bacteria in the rod form, which appeared to have a constant relation with the morbid processes; their curved forms gave rise to the term *comma* bacillus, first described by Pacini of Florence. This microbe appears in the intestinal liquids 2 to 3 micro-millimetres in length, $\frac{1}{2}$ to $\frac{3}{4}$ in width, and is only about two-thirds of the size of the tubercle bacillus, very lively in its movements, and varies a good deal in curvature.

The epidemic invaded Marseilles and other parts in Southern France, thence passed over to Italy, where it made great ravages.

In Spain, notwithstanding the rigorous system of quarantine, it assailed the port of Alicante, thence to other places in the provinces of Lerida and Valencia. Two days later, Dr Ferrán, accompanied by Dr Pauli, was deputed by the municipality of Barcelona to study the malady. He had previously become familiar with the microscopic appearances of the cholera germ in Marseilles and Toulon, which in his view was susceptible of microphytic changes under micro-biological cultivation. His selected medium was meat soup sterilized, with human or pig's bile added, and caustic soda sufficient to produce a free alkaline reaction. The germs introduced into this solution with needful precautions were kept seven hours in the matrass at a temperature of 37° in a stove till the broth became turbid, and two hours longer of incubation completing the process, with the addition of another remaining part of the perfectly sterilized broth, and keeping it at 15°. At this point, where Koch described his well-known comma bacilli, Ferrán drew attention to a great versatility of the microbe. From the commas and *spirillums* arise two bodies quite distinguishable: one springing from the interior of the spirals in the shape of shining spores, separate and few, enclosed in hyaline film; when separated from this, they attain to double the size of a red corpuscle; their sides swell out, becoming less spherical, less transparent, and more visible. In the course of ten minutes they became condensed spirals, which repeat the cycle now mentioned indefinitely. The cholera parasite reproduces itself in two distinct manners—by

scissiparity and by ovulation. The rapid vegetation exhausts the medium that nourishes it.

The course and peculiarities of these microbes having been more minutely described in the translation referred to, Dr Ferrán ascertained that, if the dejections of a cholera patient furnished seeds of colonies of the comma bacillus which, transported into a soup slightly alkalized and gelatinized, supplied a cultivation endowed with such virulence that 2 cc. injected hypodermically into guinea-pigs caused the rapid death of these animals notwithstanding their great resisting powers to such influences, a double dose lowered the temperature 6 or 7 degrees, and caused cyanosis, distressed cries, shiverings, convulsions, anuria, horripilation, and general dejection, greenish exudation from the mouth, while the seat of injection caused a hot, hard swelling and hyperæmia, with intestinal phlegmasia.

Numerous experimental observations made on animals, especially on the species above mentioned, led Dr Ferrán to the conclusion that individuals who survived these injections could subsequently resist still more powerful doses of the same poison—in a word, they were vaccinated. This most important fact—by no means exclusive in science—opened up a wide field for extended application. The virus, with due alternation, as effected by well-ascertained methods in micro-biology, was applicable to the human species. Impressed by this idea, Ferrán along with Pauli inoculated himself and friend with half a drop each of pure cultivation. Encouraged by this first attempt, they progressively increased the dose to ten drops. In this they were followed up by professional comrades, who came to Tortosa to investigate this new scientific departure. Some twenty of the Barcelona doctors followed up Señores Jimeneo, Colvée, Garin, and Villaroyer, showing the ineptitude of the expression of M. Vulpian at the Commission de l'Académie Française,—“*Je ne savais pas qu'il y avait trois cents médecins dans l'Espagne qui savaient lire et écrire!*” Cockneyism is not confined to London.

The hypodermic injection of some drops of the attenuated cultivation in the region of the brachial triceps in both arms produced a warm, slightly painful tumefaction, with moderate chill and tendency to shiver, which radiates to the back of the hand; a little stiffness in the arm with tenderness on pressure; but these symptoms are not nearly so intense as to require the subject to give up his usual occupation or alter his mode of living.

On increasing the amount of the dose, there appears a general disturbance, according to the individual receptivity; in the most intense cases noticed there were marbly perfrigeration, lypothymia, filiform pulse, nausea, inclining to vomit; increase of fluidity and number of alvine dejections, but not diarrhœic, with flushings.

Reaction speedily follows, and cedes quickly and spontaneously. The duration of these disturbances is short; they begin three hours

after injection, attain to their height in twelve, and are completed in twenty-four, leaving no traces unless a slight exhaustion and marks of local inflammation, which rapidly disappear.¹ A microscopic examination of the blood of those inoculated without disturbances presented no alteration, but on those more specially affected showed some of the peculiarities present in that of the guinea-pigs injected.

If after eight days the same individual becomes again operated upon with an equal dose, none of the previous phenomena occur—only slighter local lesions become manifest; hence indubitably the experimental cholera becomes a true prophylaxis of the same comma bacillus.

In the middle of March cholera appeared in Jativa. Fifteen days afterward Ferrán, by request of Dr Jimeneo, left Tortosa, and arrived in Valencia, with the view of bringing into action his fruitful discovery. In Alcira the eleven practitioners approached him with earnest request that he should give their town the benefit of his investigations, to which he assented. The dazzling effects of such manipulations speedily told on all the surrounding population. In Masenasa 177 inoculations were effected in one day; in this place there were 92 attacks and 42 deaths from cholera up to the 30th June, and of these there were 3 attacks and 2 deaths among the vaccinated; the latter (two women named Bautista) were within three or four days after being operated on, showing the truth of Ferrán's position, that five clear days are required before the protective power of it becomes secured.

In the course of five months, in different centres of population, there were inoculated 50,000 Spaniards, a great proportion of them twice, and some even a third time, thus making at least 150,000 hypodermic injections in all. In absolutely none of these have any accidents of importance occurred. The phlegmons produced on the arms of these did not exceed 50, or 1 for 3000 injections. Can those injections which we daily make of pharmaceutical agents for other maladies show any better record?

Immediately after the public vaccinations in Alcira, the Home Secretary, Sr. Romero Robledo, incited by an eloquent speech of Sr. Emilio Castelar and the numerous notices in the press, nominated a scientific Commission to proceed to Valencia to ascertain the reality of the epidemic and as to the truth of Ferrán's labours, consisting of very eminent professors, men of the highest reputation and standing in the profession,—Don Frederico Alonso Rubio being president, and the secretary D. F. Castillote, a mere politician. But the hostility of Sr. Robledo, whose prepossessions were entirely in favour of the quarantine system, to which the views of

¹ An amusing proof of the harmlessness of the Ferrán inoculations was displayed at Ondara (Alicante) in the case of a person who, getting himself sufficiently *four*, presented himself before three practitioners who were busy performing the injection on a crowd all at the same time. He got in all seven complete injections, and was examined by the Commission official next day, and found nothing the worse!

Ferrán were utterly antagonistic, showed itself from the first, acting in unison with the civil governor of Valencia, who was a declared enemy.

Many days were lost at Madrid before the Commission started, the secretary being the centre of obscure intrigues to nullify or minimize its investigations. As soon as they signalized any community as attacked by cholera, it was ordered into quarantine directly. No arrangements were made to promote the object of the Commission or the labours of Ferrán. They were sent on to Jativa, where scarcely any cases were present. A shower of telegrams were sent demanding immediate reports, grumbling at expenses, etc., so that they returned to Madrid in ill humour, and after such experience of three weeks, but ill prepared to execute their allotted task satisfactorily.

Their report bore that the epidemic in Valencia was really Asiatic cholera; that it seemed more contagious than infectious; that Dr Ferrán's injective liquid contained bacteria; its application was inoffensive; that statistics appeared to favour its application, but as yet insufficient in extent. They considered the inoculations should be continued under the direction of Ferrán and his deputies. Finally, they made a respectful intimation to the Government that Ferrán was a man of science, probity, and good faith; his perseverance and zeal in this matter entitled him to the protection of the Government and to public gratitude. On this report the *Real Academia de Medicina* gave a *dictamen* in much the same terms.

A minority made a special judgment somewhat in opposition to that of the majority, which they regarded as inconclusive in some particulars, but coincided in urging the continuance of Ferrán's labours under authoritative inspection, and that he should be adequately recompensated for his labour and expenditure.

Concurrently with the governmental Commission, a number of public corporations (*Deputaciones provinciales y Ayuntamientos*) sent commissioners of their own to examine and report on a subject of such momentous exigency—Sevilla, Albacete, Cordoba, Legroño, Coruña, Ciudad Real, and Guipuzcoa, for example—all of whom reported most favourably; only Sr. Tuñón de Lara, from Seville, sent back a very cross-grained manifesto, giving his belief that the whole thing should be put down!

The question now assumed a political form. The hostility displayed on one side rendered their adversaries the more favourable, although Dr Ferrán took no part whatever in the field of political strife. He found it expedient, from the embarrassments and limitations under which he suffered, to proceed to Madrid and place himself in communication with Robledo's successor Sr. Villavarde, and also with Don Antonio Cánovas de Castillo, then President of the Ministerial Council. A new Commission was nominated to accompany Ferrán to the parishes that petitioned for his protective services, and to give the official stamp as to the

reality or nullity of his system. Instead of the eminent physicians, professors, and histologists, who composed the first deputation, it consisted of a demonstrator of anatomy unversed in histology, D. F. de Castro; a hygienist, Sr. Bombin; an accoucheur in charge of the Maternity Hospital, Sr. Segovia,—all of them respectable enough in anatomical dissections, syphilology, and midwifery, but entirely devoid of qualifications to judge of questions in microbiology. To this wonderfully composed body of investigators was added a committee of staticians. Their field of purview included Ondara and Santa Pola in Alicante, and Cambrils, in the province of Tarragona. The verdict of this august jury was in keeping. They opined:—

1. Ferrán's prophylactic procedure cannot be considered as inoffensive for the individual, from the general and local effects on the majority of the inoculated. The only foundation for this was one death of one inoculated within the necessary five days of the operation at Santa Pola, and four also at Cambrils, where eight fishermen went to sea forthwith after being injected, and who had each a small abscess at the puncture, which got well in a few days.

2. No proof exists that the vaccination liquid is an attenuated cultivation of the comma bacillus. The Commission have not yet condescended as to the *how* they arrived at this conclusion.

3. They objected to the absence of a criterion in the choice of the liquid employed in inoculations as regards identity of quality and quantity, and adaptation to individual constitution. Further, they considered the subject of such treatment must transmit the comma bacillus through his clothes to the surrounding population, and thus become a focus of infection! Moreover, no symptoms of experimental cholera being perceptible in such individuals, and yet they are more subject to contract all manner of diseases in the first days subsequent to the operation, inasmuch as the latter destroys the needful physiological equilibrium!

The final hostile conclusion of these gentlemen's utterances completely justified the patronymic of the promoter Villaverde (*Greentown*), who in a matter of transcendent importance—national, social, and scientific—thought only of providing work and wages to a few old friends and schoolfellows.

The French Government sent also two commissioners to investigate the claims of Ferrán to the gratitude of humanity. The Minister of Commerce sent M. Gibies, with whom was associated the envoy of the Belgian Government, M. van Ermangem, both of whom showed inexcusable frivolity and lack of consideration. Shortly afterwards the same minister sent M. Brouardel, Professor of Legal Medicine, University of Paris, with whom was conjoined M. Charrin and Señor Albarrán, a young American friend of the former. Besides their commission from the minister, these gentlemen had an introductory note from M. Pasteur himself, requesting

Ferrán to give them the means of forming a sound opinion in the matter, by enabling them to examine for themselves and form their own statistics. But the proceedings of this last Commission were equally unsatisfactory. Instead of approaching Dr Ferrán as fellow-cultivators of the wide field of scientific inquiry, instead of seeking to learn his peculiar methods, M. Brouardel and his companions assumed a tone of arrogant, suspicious superiority, laying down the law as to how he was to proceed, and seeking to entrap and inculcate him. From the first day their relations became the more strained. Sr. Botella, the civil governor of the province, a declared enemy, joined himself to them by supplying false statistics, and local inspector Gomez aided what he could in such disreputable work. Arrogant, supercilious, pseudo-patriotism on the part of the French, disdaining to learn anything from an obscure corner of a less eminent neighbouring nation, and the indignant self-respect, conscious capacity, and probity of the Spaniard, made this mission an utter failure at the end of **THREE DAYS!** At the end of that period they returned to Paris, made out a report to their Government, to be estimated for what it is worth. It made some impression on public opinion in France, but was vigorously combated by a luminous and just publication by M. Chaveau, one of the highest intelligences in France, and whose conclusions were in entire accordance with the Ferrán doctrine, though varying as regards some details.

On the back of these disheartening occurrences there came a ray of light and encouragement to Dr Ferrán from Britain, in the shape of a paper read by Dr Charles Cameron, M.P., at the meeting of the Society of Natural Science in Glasgow, 4th November 1885, a translation of which was published in the periodical *El Dia*.

After some preliminary remarks on the consummate importance of a preservative from cholera from our possession of India, its birthplace, our extended commerce suffering so severely from the quarantine interruptions which an attack calls forth, Dr Cameron proceeds to discuss the claims of Ferrán, examined in the light of the statistics officially given out in the localities in Spain where his system had been tried in the face of a cholera epidemic, beginning with Alcira, with a population officially stated at 16,000, but which M. Brouardel augmented, seemingly from his inner consciousness, to 24,000.

The disease appeared in the beginning of April 1885, and made from 20 to 30 victims. Dr Ferrán came there on the 1st of May and set to work. Each person inoculated was registered, suitable particulars marked and recorded in a certificate of vaccination, on the back of which was printed a short summary of the Ferrán system, with an intimation that complete immunity from cholera was not insured, but the same sort of protection given by cow-pox from small-pox. Five days were stated as requisite for the cholera vaccination to give its full protective effect.

By the end of May 7045 had been inoculated, and 4117 of these for the second time. During this month there had been 121 attacks and 57 deaths among the unprotected, and 23 attacks and 3 deaths among the inoculated, the latter all before the 5 days of suspense. During June and July the number of the inoculated was 9539, the unprotected 6461; the attacks, 283 among the latter, and 76 of the former, with 149 unprotected and 21 deaths among the vaccinated, giving a proportion of 1 to 125 and 1 to 454, evidently showing that Ferran's labours had had a splendid effect. At the end of July the deaths of the reinoculated was as 1 to 771·4.

A list attested by the magistrates and more than twenty resident doctors in the subjoined series of places in Valencia corroborates the impression given by the statistics of Alcira.

Name.	Date.	Population Inoculated.	Deaths in do.	Population Non-inoculated.	Deaths in do.
Alberique	June 16 to Aug. 6	1188	0	3808	33
Benifayó	July 5 to 27	2717	0	715	9
Catarroja	July 6 to 24	1319	2	4022	125
Cheste	July 5 to Aug. 6	3136	0	2091	25
Chiva	July 5 to Aug. 10	1308	3	3078	53
Masanasa	July 6 to Aug. 6	1960	6	561	24

The census of these populations is 26,000; of these 12,000 were inoculated, and the results gave 20 to 1 in their favour.

The allegation that the practice of inoculation could produce ordinary cholera in those submitted to it falls to the ground. It has been objected that a terrible explosion of this dire malady occurred among the Hermanitas de los Pobres, inoculated at Valencia, but the significance of this is absolutely null. According to D. Enrique Lopez, physician of the institution, the fact is this: between 19th June and 1st July there were 73 inmates attacked, of whom 65 died. On the 1st July there were inoculated 88, of whom 23 had already diarrhoea. During the first 5 days after the operation 30 were attacked and 16 died, 7 of whom had had diarrhoea before the operation. After the fifth day there was only a single case, and that was a sister who was absent on the 1st July, and therefore not inoculated.

"Without troubling you about the theory, I confine myself to the signification of the facts; and have merely quoted the scientific opinion of the highest contemporary authority in the matter of inoculation, at first sight favourable to its probability. It appears to me that instead of shutting our eyes to the facts, we should receive and prove them, since if confirmed they settle definitively the question of the causes of cholera, bestow the means of antagonizing a frightful epidemic that may assail us at any moment; and far from inducing carelessness, throws a new light on the importance of those methods of cleansing, disinfecting, and pro-

curing pure water which always constitute the principal line of defence against this invasion."

Dr Klein of London, with his statement that Ferrán approached more nearly to Don Quijote than to Jenner, merits no particular attention. Entirely different is it with Dr Edouard Abreu of Lisbon, whose report on M. Pasteur's labours in hydrophobia has been already carefully and respectfully discussed in the pages of this journal. While Ferrán was overwhelmed during the whole summer with the duties of his mission, disturbed incessantly by the arrival of deputies from all quarters, proud of their authorizations, asking all manner of questions and cross-examinations, wanting to see the whole cycle of the comma bacillus evolution completed in a few days,—the Portuguese colleague came quietly unannounced, produced no credentials, and with calm, reserved manner and laconic brevity of speech managed to see and examine everything to the bottom. He as quietly took leave, and his visit was almost forgotten, when there arrived the book entitled, *O Medico Ferrán e o problema scientifico da vaccinação cholérica*. Abreu showed he was the most successful in deriving benefit from his visit of all the foreigners. Better than any one else he has been able to proclaim the truth, rebuke the proud, define the claims of justice, and mark out the precise limits in which the question should be confined. His work is fascinating in style, shows a vivacity of diction, with a tone of independence and love of truth that convinces and delights.

In his work Dr Abreu gives a primary series of conclusions, in which the whole question is compendiously, lucidly travelled over. I shall only translate his second series, which consists of the following propositions:—

1. The liquids used by Dr Ferrán in the anti-cholera vaccination exercise an evident pathogenic action on the human species.

2. In some cases this pathogenic action produces the milder combinations of an attack of cholera morbus Asiatic.

3. The choleraic vaccination does not expose the subject to serious accidents.

4. The vaccination and revaccination confer immunity.

5. The choleraic vaccination, discovered and practised by the Spaniard Dr Jaime Ferrán y Clua, constitutes one of the most notable scientific experiments of the present century.

Along with the Spanish publications there is one in French, addressed to the Academy des Sciences de Paris, entitled *Revin-dication de la priorité de la découverte des Vaccins du Cholera Asiaticus*, par le Dr D. J. Ferrán. This was called forth by the impression made on that learned corporation by the works of Dr Gamaleia of Odessa. It is mainly a reproduction of the memorial addressed to that Academy on the 31st March, 11th and 31st July 1885, also 13th January 1886, in claim of the Prix Bréant, as complying with the conditions exigible for that prize. It is a

compendium of all the views published in his Castillian treatises, was accompanied by explanatory diagrams and four culture preparations of his inoculation liquid; but was quietly shelved, and no notice whatever taken of his repeated communications, except an insertion of the first in the *Comptes Rendus*.

While ignoring Ferrán, Gamaleïa repeats all the points of his discovery, with the single addition that the inoculation liquid acted with extreme virulence on pigeons! On the strength of this the Russian professor claimed the Prix Bréant on 20th August 1888!!!

In parallel columns the conclusions of Ferrán in 1885 and 1886 are printed with those of Gamaleïa in 1888, and *plus* two lines of the latter about the pigeons, are almost word for word!

Can anything be more deplorable than the intrusion of national or political feeling or jealousies into the domain of science? I shall conclude this section by translating the remarks of Ferrán in May 1886 on the actual state of the present state of the question:—

“Some months have passed since cholera disappeared from Spain, and with it the practice of the inoculation. The time has not passed in vain for us and for all,—for those who defended us with conviction and enthusiasm, and for those who assailed us with rancour. The disturbance carried over the ground by political ardour ceased with the last labours of the vaccinators. Passion subsided; the excitement of the struggle calmed. There is more repose in the heart and serenity in the judgment. Better now than formerly can the question of the cholera prophylaxis be confined in the limits of reality. At first sight, on weighing texts and balancing critical opinions, it would seem as if the desired solution had not been attained by the men of science who had aimed at it, however certain and secure it may be for ourselves. . . . He who would seek to form a definitive judgment on the matter, without other preliminaries than the perusal of the statements and verdicts, could not obtain it, and would have to confess that philosophers had confused the affair and made the problem more difficult rather than opened a way for resolving it . . . Yet the terms of the question are very precise. The prophylaxis of cholera by means of vaccination can only be judged by examining two points. Is there a scientific basis for the inoculation of the comma bacillus in order to give immunity from cholera? Do the results already obtained give grounds for the expectation that this is the true prophylactic method? To wander from these two points is to stray from the path and only lose time and credit.

“There operate in favour of the cholera vaccination all the eloquent facts of the phyto-parasite doctrine which have endowed contemporary medicine with a new character; of the discovery—so long followed up—of the microphyte which made the name of Koch so celebrated; the surprising conquests of the artificial vaccines, which have placed Pasteur at the head of modern

hygienists, and which have brought to light the names of a galaxy of eminent observers; the immunity from cholera attested and avowed by so many illustrious clinicians,—all this has been manifested in our works, and the evidence advanced that we labour in a new field still more fertile than any other for humanity and science. If it be rational to believe that maladies are caused by invisible vegetations that poison the system—that cholera arises from the Ganges bacteria—if it be logical to admit that the same microbe that produces also removes the malady,—is it not rational, logical, nay, certain that cholera has its vaccination, and that this is the same microbe which, when virulent, kills, when attenuated, saves?

"But, besides, the results as far as yet obtained are entirely favourable to our procedure. If facts are wanted, we produce them. If the theoretic basis be rational, the practical results have been conclusive. No one has been able to deny them; but what has been done was to twist statistics, criticise the enumeration, and object to its composition; but there was no denial of the favourable evidence to the cause of inoculation. . . .

"All must admit that this is a most serious question, and one that must be settled at any cost. This conceded, what does it signify that our conduct should be unjustly criticised, defects in our procedure assumed, and that we should be assailed with weapons prohibited by professional honour and dignity? So as justice be accorded to us, however tardily, we shall remain satisfied."

(*To be continued*).

Part Second.

REVIEWS.

Text-Book of Physiology. By JOHN GRAY M'KENDRICK, M.D., LL.D., F.R.S., Professor of the Institutes of Medicine in the University of Glasgow. Vol. II. Glasgow: James Maclehose: 1889.

THE second part of Professor M'Kendrick's text-book which has now appeared is in all respects better than the first. In that a certain want of proportion had to be complained of; but no such fault is to be found with the present volume.

Here the author deals with the special physiology of the different systems, and gives an admirably clear and full account of the vital processes connected with each of them.

The work is divided into fifteen sections, and each section is again subdivided into short chapters, an arrangement which, with the excellent index which is appended, makes the book exceedingly easy of reference.

In glancing through the pages we find that the author has

devoted no little pains to bring his work fully abreast of modern research. In this respect some of the chapters are altogether admirable. Among the best may be mentioned that in which the nature of the cardiac muscular contraction is discussed, and those upon Secretion, Coagulation, and the Nervous Mechanism of Respiration.

We are, however, somewhat disappointed by the manner in which such important questions as the events of the cardiac cycle and the changes in the endocardial blood-pressure are dealt with. In regard to the latter of these no mention is made of the interesting observations of Roy and Rolleston, which have certainly led us to modify considerably our interpretation of the older tracings of Chauveau and Marey.

In the section dealing with absorption we find no reference to Professor Heidenhain's admirable and exhaustive paper which appeared more than a year ago, and which has done so much to disprove the old mechanical theory of absorption. Other similar omissions of importance might be mentioned, but no one can be surprised by their occurrence in a work of such magnitude. The wonder is that they are so few. Had the author determined to delay the publication till all parts of the work were made uniformly abreast of modern views, we fear that it would never have appeared at all.

Had this been so, the profession would have lost an admirable and thoughtful work, and one which certainly has before it a most useful future.

Observations on some rare Diseases of the Skin: I. Granuloma Fungoides; II. Erythrasma; III. A Nodeose Condition of the Hair; IV. Pruritus Hiemalis. By JOSEPH FRANK PAYNE, M.D. Oxon., F.R.C.P. Lond.; Physician to St Thomas's Hospital; Assistant Physician to the Hospital for Diseases of the Skin, Blackfriars. London: Smith, Elder, & Co.: 1889.

IN this little volume Dr Payne has reprinted, with some additions, four papers which possess considerable interest. The first treats of a very rare disease, granuloma or mycosis fungoides, the nature and etiology of which are still quite obscure. In its early stages it resembles an erythema or eczema, inasmuch as the patches of a dark red colour may be flat or raised, smooth or scaly, oozing or crusted, accompanied by itching. On these tumours arise, which, though primarily covered with skin, eventually ulcerate and expose a polished moist surface, the whole aspect being not unlike a tomato. The patches and tumours occur all over the body, but except in unusual instances—a case recorded by Kaposi is one—the disease is limited to the integument, and does not implicate internal organs. Though the growths are occasionally spontaneously absorbed, the course of the ailment is progressive, and as a rule, to

which there are few if any infractions, ends fatally by exhaustion. Various views of its pathology are held; some regard it as a lymphadenoma, others as essentially a sarcoma, but neither of these opinions is entirely satisfactory. Payne thinks that the tumours are granulomata, or in other words, a species of inflammatory tissue-growth, yet all attempts to isolate a micro-organism have failed; the most recent investigations, those of Lassar, have been as unsuccessful as those which have preceded them. The macroscopic and microscopic appearances are well illustrated in Dr Payne's paper. The second article deals with erythrasma, a condition included till very lately under eczema marginatum. How far and on what grounds it deserves separate consideration may be learned from a perusal of this, but its title to an independent position and name is, in our opinion, still doubtful. The contribution on nodose hairs is fragmentary, and adds nothing to our knowledge concerning this strange freak of nature. We should have liked had Dr Payne told us how long each node took to grow in his cases. Our own observations confirm those of Dr Walter Smith, that for its completion a period of forty-eight hours is required. Probably what is said about pruritus hiemalis or frost itch will be found the most interesting portion of the volume. By this is meant that hyperæsthesia of the skin which is provoked in many persons by cold dry weather. Here, too, we should have been better pleased had Dr Payne informed us whether in his cases the normal perspiration was or was not lessened—whether, in fact, there was any sensible perspiration at all. A state of anidrosis is common to such cases, and is possibly the direct cause of the itching. On the whole, the book is well and pleasantly written, even though it cannot be said to contain a complete account of any of the diseases or affections with which it deals.

Leprosy: a Communicable Disease. By C. N. MACNAMARA, Surgeon to Westminster Hospital, and to the Royal Westminster Ophthalmic Hospital. Second Edition. London: J. & A. Churchill: 1889.

THIS is a reprint of a work originally published in 1866, and consists of observations mainly suggested by the Report on Leprosy drawn up by the Royal College of Physicians of London. Mr Macnamara discusses the characters of leprosy, its frequency among the natives of the East Indies, and whether it is or is not on the increase. The circumstances which favour its spread are also adverted to, as are likewise the questions of its being hereditary or communicable, and, lastly, its curability or otherwise. As to its origin from a diet of putrid or dried fish, he shows that this cannot apply to many parts of India, yet an unwholesome dietary, like unsuitable sanitary or climatic influences, may have a marked effect on the progress of the complaint. During the premonitory

stage, he asserts that advance may be checked by the administration of arsenic combined with the extract of neam, but this statement is unsupported by the relation of any cases in proof. An interesting letter from Dr Hillebrand of Honolulu, describing the introduction and spread of leprosy in the Sandwich Islands, concludes the volume, which, while it may be useful as a short *résumé*, adds nothing to our knowledge of a disease which happens for the moment to be attracting a considerable share of public attention.

Father Damien: A Journey from Cashmere to his Home in Hawaii:
By EDWARD CLIFFORD. London and New York: Macmillan & Co.

It would be difficult for a critic, however captious, to pick out faults in this interesting little biography, which possesses, among many merits, one which is by no means common, viz., brevity. As it is a good thing to stop eating cake with the feeling that one could, if necessary, take another piece, so it is pleasant to finish a book with the consciousness that an additional chapter or two would be welcome. And such is the feeling after reading this work.

Mr Clifford has divided his book into five parts, of which one alone, the third chapter, contains the biography of Father Damien, the Roman Catholic priest, who spent sixteen years of his life so nobly among the Hawaiian lepers; of the other chapters, one is entitled *Introductory*, and humorously describes Mr Clifford's voyage to Molokai; the second is a short description of Hawaiians and Hawaii; the fourth concerns itself with the famous volcano of Kilauea; and the last states in clear, concise terms, the duty owed by our nation to the memory of Father Damien, and his self-sacrificing and heroic work among our afflicted fellow-subjects. In Chapter III., in which lies the gist of the volume, the picture of the priest's life and labours among lepers is painted with powerful and vigorous touches; and although painful descriptions of the sufferers must of necessity form an important part, the reflection of the light shed around him by Father Damien in the far-off Hawaiian island brightens the book, which is given to the world in the hope of furthering the work he began so well.

The Clinical Use of Prisms. By ERNEST E. MADDOX, M.B. Bristol: John Wright & Co.: 1889.

MANY who have mastered the ordinary difficulties which present themselves in connexion with the diagnosis and optical correction of errors of refraction have, it is to be feared, got vague ideas of the clinical uses to which the prism may be put. There is certainly no reason why, although vastly less important than spherical or cylindrical lenses, prisms should be so neglected

by the ophthalmic surgeon, as is often the case. Though of comparatively little advantage for use as spectacles, there are many interesting and important pathological conditions which, by their use, can be readily diagnosed. It occasionally happens, too, that real benefit may be obtained by the proper selection of prisms, either alone or in combination with ordinary lenses. The text-books give very little information on the practical application of prisms, so that Mr Maddox's book may really be said to supply a want. In it the optical and clinical properties of prisms, the decentering of lenses, and other kindred topics, are discussed in a sufficiently elementary manner to be intelligible to any one. The information conveyed is accurate and scientific, and bears evidence of coming from one who has thoroughly mastered and given considerable thought to his subject.

We have much pleasure in recommending this little work to the attention of all who devote any time to the study of eye diseases.

Introduction to the Treatment of Disease by Galvanism. By SKENE KEITH, M.B., F.R.C.S. Ed. London: Truslove & Shirley.

THIS is a purely elementary volume on the subject of galvanism. Mr Keith is rightly of opinion, that though it is not necessary that a physician should be an electrician, yet he must know something about it before he treats his patient with the continuous current. He therefore begins at the beginning, and dealing first with our old friends, the pith ball and glass rod, the discoveries of Galvani and Volta, he goes on to discuss the theory of the voltaic cell. This is followed by a description of different forms of cells, their defects, and the methods adopted for overcoming these. Potential currents, resistance and measurements are thereafter dealt with. Electrolysis is defined in a short chapter, after which the apparatus necessary for the practice of Apostoli's treatment is described.

Mr Keith writes terse and vigorous Saxon. He has thus succeeded in conveying his information in a clear and interesting fashion, and his little work may be commended to all interested in the electrical treatment of disease, but especially to those for whom the author intends it, "who have no time, and perhaps no inclination to study larger works on the subject."

The Human Foot: its Form and Structure, Functions and Clothing. By THOMAS S. ELLIS, Consulting Surgeon to the General Infirmary at Gloucester. London: J. & A. Churchill, 11 New Burlington Street: 1889.

THIS book, although containing many valuable suggestions, suffers from the disadvantage of being written both for the general public and for the medical profession, with the result that it is not adapted for either class of readers.

From a professional point of view we find a good deal both with which to agree and to disagree. Mr Ellis's suggestion of exercise for the calf muscles as a mode of treating flat-foot is most valuable, and one which is becoming more and more recognised as a standard method of treatment. His personal experience in this respect is interesting and valuable.

His objections to an everted position of the feet in standing and in walking are reasonable, and his views are in accordance with nature, but it is difficult to imagine how Mr Ellis has been led away into urging people to walk so that their toes touch the ground first. The action is entirely artificial, and has as little to recommend it as the everted toes which he so rightly condemns.

His argument from what we would do if we were walking in a dark room among tin tacks is a warning of how even a sincere truth-seeker may be led away by preconceived ideas.

Mr Ellis is a follower of Professor Meyer.

Those who are interested in trying to find a perfect form of shoe will do well to consult Mr Ellis's paragraph on this subject. They may not entirely agree with him, but they will probably receive some useful hints.

Clinical Lectures on Varicose Veins of the Lower Extremities. By WM. H. BENNETT, F.R.C.S., etc. London: Longmans, Green, & Co.: 1889.

HITHERTO the treatment of this affection has neither been scientific nor satisfactory. This treatise, although limited to the consideration of varix in one situation, does not throw any new light upon the etiology of the disease, beyond the suggestion that abnormalities in the ilio-femoral and common femoral veins may explain the development of a varix limited to the trunk of the saphena; and that a valveless condition of the profunda may account for the tortuous condition found immediately above the inner side of the knee. In a case of extensive saphenal varicosity, however, which the writer examined post-mortem, all the valves above-mentioned were found well formed and competent. Much weight is properly laid upon a certain defective hereditary condition of the veins leading, under sufficient exciting causes, to the development of varix, but whether congenital abnormalities in other textures may not co-exist has yet to be determined. In the lecture devoted to the non-operative or palliative treatment some useful hints are to be found regarding various modes of constructing and applying bandages—a method of treatment so frequently effective as to indicate the line on which a more successful operative method of treatment may be based.

The operative procedure which Mr Bennett prefers is the exposure of the vein, ligature and division, in the enlarged saphena with or without the globular swelling at the fascial opening; or, in the

tortuous mass of veins above the knee, complete ablation after careful ligaturing.

Division is recommended because it allows a certain amount of retraction to occur, at the same time giving relief to the pain and inconvenience which may be caused by the dragging upon the parts above of the heavy mass of full veins below.

The objection to all obliterative operations of large veins is that an increased supply of blood must be thrown on the smaller, and lead to their dilatation, as general experience amply proves, so that drawings of limbs taken a few weeks after such an operation do not invalidate the belief that a satisfactory operation in the radical cure of varix has still to be devised.

The Primitive Family: its Origin and Development. By C. N. STRACKE. Pp. 315, and Index. London: Kegan, Paul, Trench, & Co.: 1889.

THE study of Anthropology, which is yearly becoming more important and more widespread, makes us welcome any book which endeavours to marshal the facts dealing with any subject connected with the vast science. The book before us, dealing as it does with the origin of the family, is sure to call attention to itself, and as the author disagrees with many of the theories which have been put forward as to the origin of the primitive family, it is sure to evoke much criticism.

For a popular work we think that the book is too brief, and that by so much compressing an enormous store of facts, the author is somewhat apt to render his subject rather too difficult for rapid appreciation. In dealing with the subject of the primitive family, Mr Stracke assumes the rude primitive origin of such a community, but he only conditionally admits that the original conditions of races have so much in common that their development usually passes through the same general phases. He is of opinion that "we can no more discover the first primitive community than we can discover the first man; the history of mankind begins in a plurality of distinct groups, and hence the fact that a uniform beginning is at any rate doubtful." Believing, as he does, in this plurality of distinct groups, he maintains that the primitive condition of all human communities was virtually the same; he does not consider, as many do, that sexual impulse was the foundation of the primitive family, for he thinks that jealousy would be too powerful to have permitted promiscuous intercourse, and he thinks that it was the fear of dangers from without which prevented the primitive family from breaking the social bonds.

Mr Stracke divides his work into two sections, the first dealing with the definition of kinship, and giving a description of kinship as met with in various parts of the world. This section treats of the subject geographically, and bristles with facts culled

from every part of the globe. The second section deals with the primitive family, and is an exhaustive account of the relation between parent and child, and husband and wife.

We may perhaps summarize the author's conclusions in his own words somewhat as follows:—"The family has been shown to be an organisation which was formed, not in order to make it easier to earn, but for the better enjoyment of the wealth which was already earned; when once founded, it was maintained and carefully developed, because it offered external advantages to the man, inasmuch as his power was increased as his sons grew to manhood, and his daughters brought him into profitable relations with other families. It was an organisation which was not self-contained, but depended on an external world, through which its internal ramifications were in many ways defined and modified."

We can strongly recommend the perusal of this book to our readers, as, although we do not expect that they will all agree with the author's conclusions, yet we are sure they will obtain a very clear insight into a subject which cannot fail to interest the medical profession. The bibliography at the end of the volume is useful, and adds not a little to the value of the book.

The Natural History of Cow-pox and Vaccinal Syphilis. By CHARLES CREIGHTON, M.D. London: Cassell & Company: 1887.

"Vaccination." Article in the *Encyclopædia Britannica*, Ninth Edition, Vol. XXIV. By the same Author.

Jenner and Vaccination: A Strange Chapter of Medical History. By the same Author. London: Swan Sonnenschein & Co.: 1889.

(Continued from page 355.)

WE come now to the very heart and soul of Dr Creighton's doctrine—to his views on the true nature of cow-pox, and its relationship to syphilis. The subject is dealt with mainly in his work, *Cow-pox and Vaccinal Syphilis*. His opinions are rather difficult to collect from among the rhetorical passages of his essays, but the following summary expresses what we learn concerning them.

Cow-pox he holds to be entirely an artificial disorder. It has its origin in an eruption on the teats and udder of hard pimples, which, if left to themselves, "maturate" to a very limited extent. These pimples, even matured in a natural way, do not, he urges, constitute cow-pox. "Their 'natural' development, in so far as it can come into the pathology of infective disease, does not exist, for the reason that the pimples on the cow's teats, if they were saved from the 'merciless manipulations of the milkers' [the words are Ceely's], would simply run the course of pimples, and would never become pox; it is the perpetual 'insult' of an ailing part, the forcible traction on the pimply skin three times

a day, the creation of hæmorrhagic crusts, and the ever-renewed displacement of these, that now and then sets up the inveterate and communicable process which we know as cow-pox."

"Its characters are deep or spreading ulceration (sometimes phagædenic to a degree that destroys half the udder), with slow healing, induration of the base and roundness of the edges, and a deep permanent scar, often smooth and regular, but not rarely puckered and irregular, such as follows any ulcerative destruction through the whole thickness of a vascular and almost erectile skin."

The parallelism of the disease thus described with syphilis he endeavours to make out by a reference to Ricord's plates of experimental chancres, and by the narrative of one of Ricord's cases as given by an eye-witness. On the 6th day there was a little pimple at each inoculated spot, on the 7th day the pimples had become vesicular, on the 10th crusts began to form, on the 15th ichor oozed from beneath the crusts, on the 22nd this had become purulent, and on the 29th putrid. On the 30th the crust separated, revealing an ulcer, with raised hard edges, and ultimately a cicatrix formed. Mr Henry Lee's plates (*Med. Chir. Trans.*, 1861) are said to show the same characters, and the ulcers above described "are exactly parallel to the Stroud inoculations with cow-pox" to which I have already referred. Jenner's and Ceely's descriptions of the sores on the milkers' hands, got by accidental infection from the cow's teats, are also brought in to show the resemblance to syphilitic sores. In a case of Ceely's, the patient stated that about ten days after discovering the disease on the cows he observed two pimples on his hands, followed by axillary pain and tenderness, constitutional symptoms, the pimples ending in ulcers with a central slough, the bases being surrounded by a red elevated induration. Such sores may cause accidental auto-inoculation of other parts of the body. Occasionally, too, the local sores are accompanied by "papular, vesicular, and bullous eruptions." Then we have a description of Ceely's vaccinations direct from the cow. In them, fluid remained in the margin of the vesicle till about the 16th or 18th day, the crust being often retained till the 4th and 5th week, leaving a deep cicatrix, or a yellow foul excavation. Often the vesicles burst, and in bad subjects secondary inflammation followed, with perhaps cellular and axillary abscesses, etc. All this soon subsided, however, leaving an unexpectedly small cicatrix. In succeeding removes from the cow very remarkable improvement took place, even in three or four removes. The facts as to the important Wurtemberg collective investigation on cow-pox, reported by Hering in 1839, do not easily fall in with Dr Creighton's views, Hering having no corroding nor phagædenic ulcers in using primary lymph. Dr Creighton tries to take the edge off Hering's statement by suggesting that his inquiries were biased, and his reports incom-

plete. Bousquet's account of the Passy cow (1836), and Estlin's Gloucestershire practice,¹ originating with 11th day lymph from a girl "domestically inoculated from a milker's vesicle," are also adduced in support of Dr Creighton's doctrine.

Having considered these accounts of the results of cow-pox in its early removes from its source, the doctor goes on to discuss "humanised cow-pox and its anomalies." And here we find him guided by his views on unconscious memory. The effects of vaccine in every-day practice "are a more or less remote reproduction of the natural history of cow-pox in the cow, of accidental cow-pox in the milker, and of the infection set up by primary lymph experimentally in the child." The cycle of events is shortened, the ulcerous termination being left out, and repair is earlier completed, the resulting scar being also modified. The experiments with primary lymph are the key to "so-called anomalies and complications" of vaccination. "However far the vaccine may travel from its source, it can but 'drag a lengthening chain.'" Vaccine roseola, as occasionally seen, "is really the secondary exanthematic effect" of the vaccine fever, and vaccinal erysipelas is simply an exaggeration of the normal areola, and is therefore not to be guarded against as if it were due "to foul lancets or extraneous infection," as to which it is said "we need have no hesitation in dismissing the theory."

Some causes which determine the return to the original character of cow-pox are referred to incidentally. The chief appears to be taking lymph after the areola has appeared. Another is the use of backward or retarded vesicles furnishing a scanty supply. A third is the existence of a large number of vesicles on the arm of the vaccinifer (p. 140), and a fourth, "the drainage of lymph to the last drop." In these we see points of contact with the orthodox belief. The facts, of course, have been long known, and Dr Creighton accepts and adopts them by saying that we are here dealing with causes which rouse to activity the dormant memory. The retardation of vesicles is equivalent to a prolongation of an early stage, and belongs to a reversion to the long cycle of untamed cow-pox. It is not so clear, however, why draining a vesicle should stimulate this memory. And as for the appearance of an areola on or before the 8th day—that is surely a quickening of the process—it is too soon, not too late. Why then should it also revive the recollection of a lengthened cycle?

I need not here wait to dilate on what every medical man must see at a glance—how these opinions differ from those ordinarily held on this subject; but I may note in this connexion what Dr Creighton nowhere refers to, even in his most recent writings, namely, Dr Buist's valuable cultivation experiments, and the reasonable basis they afford to the recognised practice of using only limpid 8th day lymph from vesicles without an areola.

¹ *London Medical Gazette*, 1838-39.

Last of all, we come to the so-called vaccinal syphilis. Dr Creighton does not believe that true syphilis can be implanted from a vaccine vesicle—not even, as I have already mentioned, in the well-known case of the public vaccinator, who after two or three failures, produced the ordinary symptoms of primary, secondary, and tertiary disease by vaccinating himself from an obviously infected child. In this and in all other cases the effects produced were not, we are told, due to venereal syphilis at all. They were merely the manifestations of cow-pox returning to its original characters on the cow's teats and the milker's hands. They were examples of "unconscious memory." In this connexion our author quotes, apparently with approval, from some of the early anti-vaccinators,—from Moseley, for instance, who looked on the symptoms of diseases following cow-pox as "totally new, and differing in every particular from established nosological definition;" and from Birch, who "saw new and anomalous eruptions following this disease, eruptions which in the whole course of his former practice he had never met with." In passing, I may observe that these statements give about as flat contradiction as could be conceived of, to Dr Creighton's view that the appearances in question were on all fours with those due to so common a disease as syphilis.

Bohn's statement is also noted, that "the origin of the syphilis that occurs as a sequel of vaccination is shrouded in mystery," and Dr Creighton urges that "inculpated vaccine matter could hardly ever be traced to a syphilitic constitution in the vaccinifer." Between "the common 'vaccinal ulcer'" and those cases in which syphilitic contamination is alleged, "the distinction," he says, "is arbitrary." In short, he claims "the phenomena of so-called vaccinal 'syphilis' as in no respect of venereal origin, but as due to the inherent, although mostly dormant, *natural history characters of cow-pox itself*," and in this belief he makes a detailed examination of the various outbreaks of alleged vaccinal syphilis that have occurred since the first reported epidemic at Udine in Italy in 1814. The value of this theory to the professed opponents of vaccination is manifest. It forms a much more useful weapon than does the assertion that syphilitic virus may be inoculated along with vaccine lymph. The latter danger is, to begin with, contingent on the presence of syphilis in possible vaccinifers, while the former is inherent in every drop of lymph that is used for vaccination.

In attempting to review Dr Creighton's doctrine, I need hardly say that I do not pretend to speak as a professed pathologist. The criticism which I have to offer is mainly suggested by a careful reading of his own writings, and by references to the original authorities on whom he founds.

The first thing to strike the reader is the curious view taken regarding the artificial nature of cow-pox. The natural disease is

said to consist merely of a few unimportant and non-infective pimples. Starting with these on the udder or teats, the milker may in a few days create a malady which is infectious from cow to cow, from cow to milker, from milker to child, and from one child to another, through generation after generation, for an unlimited length of time. As the malady gets further removed from its source, its duration becomes shorter and its characters milder, until it gets to the standard of ordinary vaccination, at which point, as a rule, it remains stationary. But after any number of generations, the lymph of any vesicle if taken on the ninth or tenth day, or after the areola has formed, may perform an act of unconscious memory, resulting in the production on the arm of the inoculated person of an exact picture of the milker's sore, from which possibly half a century before it had been evolved. This memory, once revived, is not so easily quieted. It may show itself in every one of thirty or fifty vaccinated children. And the sores thus produced may be followed by mucous tubercles, loss of hair, copper-coloured scars, and all the symptoms of constitutional syphilis, the parallel being further carried out in the fact that mothers suckling such children may also be infected with symptoms, primary or secondary, indistinguishable from those of venereal disease.

It is important to observe that the inveteracy produced by milking is the sole alleged cause of the infectivity, and that therefore the cow whose disorder forms the starting point of any outbreak must first itself have been the subject of the process in question. Unintentionally, on its teats and udder, the milker has successfully performed the experiment of creating, out of a few occasional pimples, a severe and specific contagious disease, capable of being maintained and cultivated by inoculation through all time.¹

The evidences which must be produced in favour of the acceptance of a thesis so remarkable should well-nigh be overwhelming. Let us look at them, or for them.

Dr Creighton states that his views are founded on the accounts of cow-pox given by Ceely in his *Observations on the Variolæ Vaccinæ*, "for we are all alike dependent on Ceely's information." We must next, therefore, turn to Ceely (pp. 302-313, *op. cit.*)

By "natural" cow-pox, that author means the disease as found in the first case in any outbreak, and by "casual" cow-pox, he means the malady as found on cows, or on milkers infected by contact with a preceding case.

¹ To the obscurity of a footnote I relegate the really ridiculous inquiry of a friend looking over my shoulder, who asks—If Mrs Brown, or Jones, or Robinson were found to have unexpectedly developed symptoms of syphilis, would Mr Brown, or Jones, or Robinson be content with the explanation that some innocent acne pimples had been converted into chancres by "the merciless manipulations," etc. ?

Regarding the "condition of the animal primarily affected," there is, Ceely says, through want of skilled observation, seldom any exact knowledge. In one observed instance, the cow "appeared out of condition; it had heat and tenderness of teats and udder as the first noticed signs." The other two were affected in about ten days. In another case "the only symptoms noticed were that the udder and teats were tumid, tender, and hot, just before the disease appeared." Such conditions, when observed by the milkers, continue for three or four days, and "are followed by irregularity and pimply hardness of these parts, especially about the bases of the teats and adjoining vicinity of the udder; these pimples, on skins not very dark, are of a red colour, and generally as large as a vetch or pea, and quite hard; in three or four days many of these have increased to the size of a horse bean, milking is generally very painful to the animal, the tumours rapidly increase in size and tenderness, and some appear to run into vesications on the teats, and are soon broken by their hands; milking now becomes troublesome and occasionally dangerous." When first seen by a skilled person, the cow originally attacked usually presents on the teats, vesications, some entire, others broken. Those broken have a central depression with marginal induration; those entire, on being punctured, effuse a more or less viscid, amber-coloured fluid. On the udder, especially near the base of the teats, and on the teats themselves, are dark crusts; some, in the latter locality, partially or wholly detached, leaving a raw surface and central slough. The crusts on the udder are circular or ovoid, acuminate or depressed; on the teats they are less perfect.

It is not, of course, necessary for me to prove a negative, but I confess that I look in vain through Ceely's writings for any sufficient foundation to Dr Creighton's doctrine.

In the *natural* disease it will be noted that on the udders, which of course are not subject to the milking process, the disease does not stop with the formation of a few pimples. On the contrary, though the details of the cases are hardly ever seen by competent witnesses, there is ample evidence that the process goes on to the stage of crust formation—"dark brown or black uniform crusts . . . imbedded or surrounded with more or less indurated integument." The milking will unquestionably indirectly affect even the udders, especially close to the teats, but only very trivially as compared with its action on the teats themselves. And there is no proof that either on teats or udder the disease would in any circumstances have stopped short at the papular stage.

Reverting now to a consideration of the conditions under which the *casual* cow-pox, as above defined, comes to be witnessed, the character of the matter, which is often the vehicle for conveying it, will, from Ceely's description, be easily understood. In cows receiving the infection from an animal which itself has been already under the disease for two or three weeks, blood and pus, and samples of all the filth incident to a cow-house, are practically certain to be introduced in addition to any elements of definite contagious disease. Indeed, the reason for the disorder being entirely, or almost entirely, confined to milk cows, seems to be that it is propagated solely by contagion, and that the only likely contagion is by means of the milker's hands, so that the cows are infected not by a specific virus alone, but by various extraneous matters, including the products of inflammation, suppuration, and putrefaction.

Dr Creighton has formed the belief that it is on the operation of milking, and on these various and varying foreign constituents, that the whole infective process depends, and that it is they, diverse as they are, that in all cases end in the evolution of a malady whose characters are not severity but mildness, not variety but uniformity.

Ceely knew quite well that the milker's operations caused great inflammation and induration. He speaks both of "the general mildness of the disease," and of the fact "that its topical severity depends almost wholly on the rude traction of the milkers." But his interpretation of the facts is the reverse of Dr Creighton's: the mild disease was in his estimation the true cow-pox, and the topical severity was an accidental complication. With the very subjects of the disorder before his eyes, he never hints at any other notion.

Coming now to the details of casual disease, which Ceely had a much better chance of following out on the cows, we find again that "there is rarely any manifestation of fever or constitutional disturbance." There is, of course, the usual variation of type depending on season and on individual idiosyncrasy.

As to the topical symptoms Ceely notes—"It is very rarely that any indications of contagion, after undoubted exposure, are manifested before the sixth or seventh, sometimes not till the eighth or ninth day; but a vigilant observation of thin-skinned animals, with chaps and cracks on the teats, will exhibit small red, rather tender papulæ near the udder and on the body of the teats about the fifth day. . . . Between the tenth and eleventh days the disease in general reaches its acmé. On the udders the tumours are often from eight to ten lines in their largest diameter, and in white skins the centres and central edges of the intumescent margin are of a deeper blue or slate colour, and the areola, which is usually of a pale rose colour, is seldom more than four or five lines in extent, under which the integuments are deeply indurated. Lymph, which two days before was difficult to procure from beneath the cuticle of the central depression of some tumours, is now so copious that it raises the cuticle, forming a globular or conoidal vesicle, or freely flows out from its rupture. . . . On the teats the few tumours which remain unbroken undergo similar changes, but appear to have less extent of areola, and less circumferential induration. . . . On and after the twelfth day, on the udder nearly all is passive; . . . the marginal indurations . . . have nearly disappeared on the spontaneous separation of the crusts, which takes place on the twentieth or twenty-third day. . . . On the teats about this period—the twelfth day and onwards—around their base the tumours and vesicles which are left entire exhibit the like appearance; . . . on other parts of the teats, out of the way of the milkers, and where the tumours or vesicles have been small, few, or solitary, the same may be observed." Then follows what amounts to a description of the effects of milking,—crusts with hardened base, raw bleeding surfaces, ulcers, sloughs, heat and tenderness, etc. Next it is noted that there is "not unfrequently . . . an odour strongly resembling that which emanates from a patient in the last stage of small-pox." In some animals, under some circumstances, the condition described continues little altered till the third or fourth week. . . . In many, however, little uneasiness seems to exist; the parts gradually heal. . . ."

In summing up his observations, Ceely says, "The normal course of the natural and casual disease is completed in about twenty or twenty-three days,

viz., four days in the natural form, from the probable period of invasion (in the casual, three or four from the presumed period of incubation) to the appearance of the eruption; six or seven from this period to the full development and perfect maturation of the vesicle; five or six from its decline to perfect desiccation; five or six from this period to the spontaneous separation of the crust, and the formation of the cicatrix." Irregularities, however, are frequent—e.g., shortening of the first two stages in the natural disease; prolongation of the first stage, and shortening of the second in the casual disease; frequent shortening, and occasional prolongation of the third stage in both diseases, and so on. Regarding the seat of the vesicles, "they are found principally on the teats, but are often seen on the udder, especially on the lower and naked part."

In the casual disease, as in the natural, we thus again see the importance of observing the facts about the udder. On it, on the tenth and eleventh days, "lymph is so copious that it raises the cuticle, forming a globular or conoidal vesicle, or freely flows out from its rupture."

I have now to call attention to what seems to me a very serious objection to Dr Creighton's doctrine. While we have noted the character of the material conveying the disease to the majority of the cows in a byre, we have also noted that, from the time when the earliest symptoms of the natural disease are observed on a cow, only ten or twelve days elapse till some others are visibly affected by contagion. We now see that this interval embraces the period—four days apparently—of tenderness and swelling preceding the eruption on the first cow, and also the incubation period of three or four days belonging to the casual disease of the animals infected from the primary case. Between these two there is an intermediate period of only from two to five days. Now, on Dr Creighton's hypothesis, it is in this interval that the great change takes place—that the eruption of ordinary pimples is altered into an inveterate, specific, highly contagious malady, parallel in its local manifestations, and in its after consequences, to the worst species of human venereal disease. Ceely always speaks of two milkings per day, though Dr Creighton writes as if there had been three. Probably, however, Ceely knew best, as he was on the spot, and the events are now fifty years old. Therefore, from four to ten repetitions of the milking process must be sufficient to bring about the transformation. And if we allow, what Dr Creighton does not suggest, that a beginning may have been made a day or two before the pimples appear, we still have a period which, even to a pathologist willing to grant that it could take place at all, would surely seem absurdly inadequate for so remarkable a metamorphosis, which, in the words of its sponsor, "owes its existence to provocation, or to neglect and indifference to the reparative process, carried beyond the safe limit." Clearly, too, in this short period there has been no time for the formation of sloughs, deep ulcers, etc., and all the conditions of wildness which, in Dr Creighton's estimation, play so prominent a part in the infective

process. Yet, independently of these, the disease is infective. Have we not, then, here the very virus of cow-pox, and are not all the sloughs and ulcers mere accidental complications, having nothing to do with the real essence of the infection?

Further, in order to agree with Dr Creighton, it seems necessary either (1) to give up the modern belief, with all the evidences on which the belief depends, that infectious diseases owe their existence to living organisms; or (2) to accept abiogenesis, and to acquiesce in the proposition that these few acts of milking are capable of bringing into existence a germ whose life history involves all the phenomena of vaccination. From Dr Creighton's writings, I judge that he would accept the former alternative.

The sores on the milkers' hands and those resulting from the use of "primary lymph" next demand attention. The former furnish the strongest evidence that Dr Creighton can adduce in support of his thesis. "The best proof that the ulcerating and indurating part of cow-pox is no mere appendage that may be lopped of, is the fact that on the milkers' hands, and even on their faces, the vesicles pass into the stage of slow-healing ulcers, with a uniformity that is practically decisive for making ulceration the full and unmodified type of cow-pox as a communicable infection" (p. 83). The position, indeed, he thinks so unassailable that opposition to it hardly merits consideration. "It is idle," he says, "for Hering and Seaton to urge 'that the phagædenic or indurative ulcerous process has been, in England, *superinduced* upon, or added to the original characters of cow-pox by the remorseless traction of the teats in milking the animals three times a day.'" We will turn now to the facts.

That author says—and the words may apply alike to the natural and to the casual disease—"The best lymph is to be obtained from perfect vesicles before the period of acumination," and should be sought for "where the vesicles are least exposed to injury, viz., on the lower or naked parts of the udder and the adjoining bases of the teats;" or, in other words, the best cow-pox virus is to be sought for on parts which have not been subjected to those manipulative processes which, Dr Creighton tells us, are alone capable of producing it.

Not often, however (and this is of essential importance), did Ceely use "the best lymph," or, indeed, liquid lymph of any kind. He was too soon, or he was too late, or if at the right time, then the vesicles had been accidentally ruptured, so that in detailing the results of "primary lymph" he usually means, not liquid lymph at all, but crusts. Dr Creighton himself mentions this. He says (p. 63), that "for the practical purpose of inoculation, Ceely had to be content with crusts." But when he comes to urge, in support of his theory, the severity of the symptoms produced by Ceely's primary vaccinations, he makes no reference to this very pertinent fact. After dilating on sloughs, abscesses,

and ulcers, he goes on to say, "such being Mr Ceely's experience with primary lymph;" and the headline of the page in which the passage occurs is, "Ceely on effects of direct cow lymph." But surely Dr Creighton knows that, from the point of view of those who differ from him, the whole question consists in what he here seems to take for granted—that there is no need to differentiate between the effects of uncontaminated lymph on the one hand, and of crusts containing all manner of dirt and debris on the other. Further, the doctor should have observed that Ceely himself makes mention of an additional cause for the severity of the milker's sores. He writes as follows about their *liability to rupture*, "Although there can be no doubt of the greater severity of the local and constitutional symptoms attending the casual cow-pox on the hands, etc., it is equally clear that these symptoms are greatly aggravated by the rupture of the vesicles on parts so vascular, tense, and sensitive, and subject to motion." Woodville, forty years before, had unintentionally illustrated almost the same point in his forty-fourth case,¹ where he vaccinated the same person both on the hand and the arm, and found that "the difference was very evident, for the tumour upon his hand was much more extensive, of a more livid colour, and attended with more inflammation than the other."

Jenner himself indicates views essentially similar. Speaking of ordinary humanized lymph, in his *Further Observations* (p. 32), he points out "that the most material indisposition, or at least that which is felt most sensibly, *does not arise primarily from the first action of the virus on the constitution, but that it often comes on, if the pustule be left to chance, as a secondary disease.*" The italics are his own. Again, arguing, as was his wont, by analogy, he says, "Is *pure pus*, though contained in a small-pox pustule, ever capable of producing the small-pox perfectly? I suspect it is not." And yet again, as Dr Creighton quotes (p. 75), Jenner says, "I am more and more convinced of the extreme mildness of the symptoms arising *merely from the primary action* of the virus on the constitution."

So that Jenner, Woodville, Ceely, Hering, and Seaton are of one mind as to what is essential and what accidental in the vaccine disease.

But we need not go to these authorities for proof that Dr Creighton is wrong. The following narrative, taken from his own pages (114-6), shows, when examined along with the associated facts, a condition of things entirely at variance with his whole theory:—

"The first vaccination done in America, with lymph from Woodville, was upon Dr Waterhouse's own child, who suffered from axillary swellings, an efflorescence from the shoulder to the elbow, and what would seem to have been an ulcer; 'a piece of true skin was fairly taken out of the arm by the

¹ *Reports of a Series of Inoculations, etc.*, p. 66.

virus, the part appearing as if eaten out by a caustic' (*Op. cit.*, i. p. 19). His own subsequent cases were milder, and, in fact, regular; but in the autumn of that year (1800) a great many misadventures occurred through the incautious use of vaccine matter from open sores or from vesicles late in their development. 'I have known,' says Waterhouse (ii. p. 8), 'the shirt sleeve of a patient, stiff with the purulent discharge from a foul ulcer, made so by unskilful management, and full three weeks after vaccination, and in which there could have been none of the specific virus. I have known this cut up into small strips and sold about the country as genuine kine-pock matter coming directly from me. Several hundred people were inoculated with this caustic morbid poison.' At a later part of his second essay we come upon the more precise details of these vaccinations with caustic virus: 'All those cases where there were violent inflammations, deep-seated ulcerations, eruptions, and heavy febrile symptoms were not the true kine-pock, but a malady generated by a highly acrid, putrid matter; or, in one word, poisonous matter taken from under a scab, or from an open ulcer *long after the specific virus was annihilated.*' The explanation printed in italics is, of course, sophistical; the scientific explanation is, that the use of the virus from a late period of the vesicle or ulcer reproduced and gave fixity to that section of the natural history of cow-pox, which is ordinarily kept latent by careful attention to the period of maturation. . . . 'At another time [says Waterhouse] the angry pustule shows no disposition to scab, the aperture in the skin increases, the inflammation blazes forth afresh, and the illness keeps pace with the progress of the ulceration; a transparent glairy fluid fills the cavity, which granulates very slowly.' This transparent fluid had been used to vaccinate with: 'It is the most virulent of all the discharges of cow-pox.' This is the caustic matter which is apt to produce in patients of certain habits a crop of eruptions and a heavy weight of constitutional symptoms.'

"When Jenner heard of the American disasters of the autumn of 1800 and of the end of 1801, he wrote to Waterhouse that he had been longing for a speaking-trumpet that would carry these words on the rapid wings of the wind across the wide ocean: *Take the virus before the efflorescence appears.* That is, no doubt, the golden rule of safe vaccination. All the same, the disastrous effects of taking late virus, or of allowing vesicles to become ulcers, were neither more nor less than natural and inherent possibilities of all and every inoculation with the products of the disease on the cow's teats."

In this quotation we have the whole case in a nutshell. Let it be remembered that Woodville's lymph *was mild from the beginning.* As he says, and as Dr Creighton quotes (pp. 27, 28), "We have been told that the cow-pox tumour has frequently produced erysipelatous inflammation and phagædenic ulceration, but the inoculated part has not ulcerated in any of the cases which have come under my care, nor have I observed inflammation to occasion any inconvenience except in one case, where it was soon subdued." Dr Creighton also calls particular attention to the fact that the vesicles of Sarah Rice, the milker from whose hands Woodville's first lymph was taken, "*gradually went off without producing ulceration.* . . . She had caught the disease, in fact, mildly, and it never came to painful open ulcers with her at all, but healed under the crusts and scabs."¹ Thus, as Dr Creighton says, Woodville "led off with a type of vesicle which hardly differed from the standard vesicle of to-day."

Here, therefore, there was no ulceration, and there could be no

¹ Jenner and Vaccination, p. 105.

memory of ulceration—no reversion to an “untamed” condition which had never existed. Yet we find, on Dr Creighton’s own showing, that in the subsequent history of this lymph there were “violent inflammations, deep-seated ulceration, and heavy febrile symptoms.” Still further, heaping contradiction on contradiction, he says of these occurrences that their “scientific explanation” is that they “reproduced” an antecedent condition.

I need hardly point out here that Dr Creighton cannot take refuge in the supposition that this Gray’s Inn lymph may have had ulcerous characters in some previous herd from which it had been transmitted. He asserts that the disorder is one which begins *de novo* from simple papules, and in endeavouring to account for the mildness of this particular “strain” of Woodville’s, he argues on the assumption that it had such a commencement. But the inveteracy, and the consequent specificity of cow-pox come into existence on the cow’s teats and udder, and it is entirely owing to the “perpetual insult of an ailing part” that the disease in any case becomes transmissible. Who, then, would ever have supposed that, in Dr Creighton’s scheme of things, lymph which, to start with, “hardly differed from the standard lymph of to-day,” could possess all the properties of contagion? We have now learned, however, that it had these properties; and we further learn, from this episode in its career, that it was capable of developing every one of the phenomena, which, he insists, can only be accounted for by initial severity—a severity which it never possessed! But, adopting the doctor’s own airy phrase in the above extract, it is “all the same to him.”

Turning from this medley of contradiction to the plain facts of the case, we find that this lymph, which had been so mild at home, caused bad symptoms on the very first case abroad. But in the interval, we have the significant fact that it had been preserved on a thread through the long sea and land journey. Next we have Waterhouse’s realistic description of the foul shirt-sleeve and the poisonous matter “from an open ulcer long after the specific virus was annihilated.” This, to Dr Creighton, “is, of course, sophistical.” Of course! And of course, too, his own theory of reversion to a type which had never existed is not sophistical. It is the “scientific explanation.” Science, forsooth!

And what a contrast does the story afford us between the “science” of the critic, Dr Creighton, and the “sophistry” (save the mark) of the much-criticised Jenner, who, living in days long before telegraphs or steamboats were heard of, longed for a speaking-trumpet to carry across the wide ocean that message of advice which to this day is the golden rule of vaccination practice.

JOHN C. M’VAIL.

(To be continued.)

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXIX.—MEETING I.

Wednesday, 6th November 1889.—Dr JOHN SMITH, *President, in the Chair.*

I. ELECTION OF OFFICE-BEARERS.

The following gentlemen were elected office-bearers for the ensuing session:—*President*, Professor Alexander Simpson; *Vice-Presidents*, Dr Clouston, Mr A. G. Miller, Dr Brakenridge; *Councillors*, Dr Ireland, Dr Matthew, Dr A. H. F. Barbour, Mr Charles W. Cathcart, Dr John Smith, Dr Strachan, Dr Alex. Bruce, Dr G. Sims Woodhead; *Treasurer*, Dr Francis Troup; *Secretaries*, Dr James Ritchie, 14 Charlotte Square, and Mr F. M. Caird, 21 Rutland Street; *Editor of Transactions*, Dr William Craig, 7 Bruntsfield Place.

II. EXHIBITION OF PATIENTS.

1. *Dr Felkin* showed a case illustrating some points of interest in the PATHOLOGY AND SURGERY OF CORTICAL LESIONS OF THE BRAIN. The patient was first shown to the Society on February 15th, 1888. The results of the trephining which had been performed by Professor Hare had been very successful in many ways, although not quite to the extent which was at first hoped. The patient's right arm had grown $2\frac{1}{2}$ inches since the operation, the left arm $\frac{1}{4}$ inch. The right leg had grown an inch, the left $\frac{1}{4}$ inch, and the size of the right arm had increased and its movements had greatly improved. The patient was now able to flex and extend the forearm with ease; she was almost able to touch the tip of her shoulder with ease, and she could put the hand behind her head. Supination was still very faulty, however, and the movements of the thumb very weak. At the knee, flexion and extension were now perfectly performed, flexion and extension of the foot were improved, but eversion and inversion of the foot showed only slight improvement. The patient was far brighter and more intelligent than she was before the operation. The dizziness and headaches from which she complained had entirely disappeared, sensation in the right arm and leg were almost equal to that in the left, and the spinal curvature from which she suffered was less than it was. The patient was now a useful member of society; she was able to walk 5 or 6 miles without fatigue; she could dress and undress herself; she worked a sewing machine; she had sole charge of her young brothers and sisters, and did all the cooking and most of the cleaning in her home. The treatment adopted

since the operation, and continued for 14 months, was either the application of the faradic current or massage applied to the arm and leg daily.¹

2. *Prof. Grainger Stewart* exhibited to the Society FIVE CASES OF NERVOUS DISEASE at present undergoing in his wards treatment by suspension, and pointed out in detail the results obtained in each case.

The first case (R. V.) was one of locomotor ataxia, with some spastic symptoms of eight years' duration, in whom, after 29 suspensions, marked benefit had accrued. The lightning pains, girdle pain, and the Romberg symptom had disappeared; his gait had markedly improved; the numbness in the soles of the feet had considerably diminished, and certain gastric symptoms, allied to gastric crises, had been very much relieved. The spasmodic jerking of the limbs, formerly very marked, occurred now but seldom. Sexual desire and power, greatly affected in the course of his illness, had already been largely recovered. In addition to these specific results, the patient distinctly asserted that his general condition was much better since the treatment was begun.

Case No. 2 (W. N.)—one of pure locomotor ataxia—was next shown. In this patient also the lightning pains had passed off; the girdle pain, had been but little altered. His gait had improved greatly, and he could now stand much more steadily with the eyes shut than he could formerly do. Diplopia was now a comparatively rare experience for him, and a troublesome and persistent lachrymation had been relieved. The numbness of the feet and loss of patellar reflex were unaltered, but some bladder symptoms had been improved, and the sexual power seemed to be in some measure regained. This patient also very decidedly expressed himself as much improved in general condition after his 21 suspensions.

The third case referred to was one of pure spastic paralysis. After 20 suspensions the patient stated that whereas he used "only to be able to walk a mile with difficulty," he "can now walk six with comfort." The jerking of the limbs when tired—the spinal epilepsy so called—had almost disappeared.

The next two cases had only had four suspensions each.

The fourth case (W. R.) had been suffering from ataxic symptoms for about 4 months. In him the Romberg symptom was well marked on admission; it had now completely gone. His gait had very greatly improved, and the giddiness and headache he used to complain much of had also been decidedly benefited. This patient was emphatic in his testimony to the benefit he had received.

Case No. 5 (G. S.)—one of spastic paralysis—had also been only a brief period under observation. His gait was very typical of the advanced disease, but had improved to some extent already. On

¹ For a full report of the case, see *Medical Chronicle*, October 1889.

admission he could only walk with the aid of sticks; now he was able to walk the length of the ward without support.

The method of carrying out the suspension was then demonstrated to the Society on this patient. Prof. Grainger Stewart pointed out that the treatment was begun with a suspension of 10 seconds, and repeated every second day, the time being increased by 10 seconds on each occasion. As yet he had seen no bad results from it, and his general impression of the treatment so far was distinctly favourable.

3. *Dr Byrom Bramwell* showed a patient who was suffering from COMPLETE PARALYSIS OF THE WHOLE OF THE MUSCLES, and ALMOST COMPLETE ANÆSTHESIA, OF THE RIGHT UPPER EXTREMITY. The condition had resulted from a fall received six months previously, and appeared to be due to a rupture of the brachial plexus.

III. EXHIBITION OF SPECIMENS.

1. *Dr Byrom Bramwell* showed the BRAIN from a case of so-called PERFORATING TUMOUR OF THE SKULL—also Photographs of the patient and of the specimen. The new growth appeared to have originated either in the bone or periosteum. On microscopical examination it was found to be a small round-celled sarcoma. The usual subjective symptoms of intra-cranial tumour (headache, vomiting, etc.) were absent; double optic neuritis was well marked.

2. *Dr James Carmichael* exhibited samples of the GLYCERITES of the IODIDE OF IRON, of IRON, LIME, POTASH, AND SODA, of the HYPOPHOSPHITE OF LIME, PHOSPHATES OF QUININE, IRON, AND STRYCHNIA, HYPOPHOSPHITE OF ZINC, LACTOPHOSPHATE OF IRON, LACTOPHOSPHATE OF LIME, HYPOPHOSPHITE OF SODA, PROTOCHLORIDE OF IRON, and PHOSPHATE OF IRON. These drugs had been specially prepared by Messrs Duncan, Flockhart, & Co. He remarked that in the British Pharmacopœia of 1867 these preparations had first been introduced as glycerina. In the U. S. Pharmacopœia of 1870 the same preparations, with some additional ones, were termed glycerates. French pharmacologists at the same time termed them glyceroles—a name which is apt to mislead, as the terminal is one generally used to denote proximate organic principles, such, for example, as benzol. The term glycerinum hardly appears to be satisfactory, as implying a definite relationship, which does not exist, in the antecedent word to that which follows. The term glycerite, therefore, has been adopted for some years in America, and is now coming into general use here. He believed these preparations presented many advantages over the similar ones made with syrup. They appeared to be more stable and more digestible, and the drugs much more active than when combined with syrup. At the suggestion of his resident physician, Dr Lockhart Gillespie, he had been making an extended trial of the glycerites now

exhibited, with satisfactory results, in the Royal Hospital for Sick Children as well as in private practice. Some of the preparations had also been used in the Royal Infirmary, where they had been introduced and prepared by the able pharmacist to that Institution, Mr Charles Arthur, who also had read a paper last April at the Pharmaceutical Society on Glycerites of the Ferrous Salts, in which he expressed an opinion that the glycerine combination was preferable to the syrupy one, as adding greater stability to the preparations, especially of the ferrous salts. His object in showing these preparations to the Society was to induce the profession to give them a more extended trial than had yet been done. He thought them elegant and useful, and they were quite as cheap as the syrupy preparations.

3. *Dr Shaw M'Laren* showed a specimen of CONGENITAL ABSENCE OF THE TIBIA, taken from a male child about two years old. The deformed limb was the right one. As Dr Heron Watson considered the leg useless, he had amputated it above the knee-joint. Fourteen cases have been recorded; of these only seven were cases of complete absence, the upper end of the tibia being present in the remainder. The tibia in this case was represented by a membranous band; in a case recorded by Ehrlich by a remarkable cone of bone projecting at right angles to the lower end of the femur; and in a case of Billroth's by a small process from the patella. The patella was absent in two cases. The tendons from the deep flexors at the back of the leg had united with that from the tibialis anticus and with the accessorius to form a curious tendinous web under the sole, which then gave off the tendons to the digits. The same thing occurred in a case shown by Dr Craig some years ago. Dr M'Laren suggested that, as this common tendon was attached to the under surface of the tarsus, it might be regarded as replacing the fixed point usually supplied by the lower end of the tibia round which the tendons played. Two fine drawings by Dr John Thomson were exhibited, and a cast of the limb before dissection showed the condition of extreme talipes equino-varus.

4. *Dr John Thomson* showed A CAST OF CONGENITAL ABSENCE OF RADIUS. The cast and photograph were taken from the left arm of a girl aged 20, and showed the deformity resulting from congenital absence of the greater part of the radius. The right upper extremity was normal and well formed in every respect. On the affected side, the scapula, clavicle, and upper part of the humerus seemed normal. The lower end of the humerus was about half an inch smaller in transverse diameter than the same part on the right side. The ulna was only about 6 inches long, and very much curved from the action of the muscles, its lower end being somewhat thickened as compared with that on the right arm. The radius was almost entirely absent, being only represented by a small piece of bone about an inch long, and a good deal smaller

in diameter than the normal articular end of that bone. It was closely attached to the carpus, between which and it there was not very extensive movement. Its upper end appeared to be connected with the ulna by fibrous attachments. No abnormality could be felt in the carpus. The four inner digits and their corresponding metacarpal bones seemed normal, although smaller than those of the right hand. The distal phalanx of the thumb was tolerably well formed, the proximal phalanx less than half the normal length, and its metacarpal bone rudimentary—being about two-thirds of an inch long, ending abruptly in a point, and not articulating with the carpus at all. The movements at the elbow were limited in extent and feeble. Those of the hand were mainly of the nature of pronation and supination. There seemed almost no movement between the radius and carpus—the rudimentary radius being like an extra carpal bone and moving in a piece with the others. There was no proper flexion and extension at the wrist-joint. The fingers could be flexed and extended, but not completely. The thumb was entirely destitute of muscular attachment. The patient was suffering from phthisis, and presented no other abnormality. She was an only child, her father and mother were healthy, and there was no history to be obtained of any malformation in the family on either side. The mother did not suffer from any injury or shock during her pregnancy, and was not the subject of any “maternal impressions.”

The President delivered his retiring Address, which appears at page 608 of this Journal.

On the motion of *Prof. Grainger Stewart*, a cordial vote of thanks to the President for his interesting Address and his conduct in the Chair during his tenure of office was then passed.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LI.—MEETING I.

Wednesday, 13th November 1889.—Dr UNDERHILL, *retiring President*, afterwards Dr BERRY HART, *President-elect*, in the Chair.

I. THE retiring *President* delivered his Valedictory Address, which will appear in a future number of this Journal.

Professor Simpson proposed, and *Dr Craig* seconded, a cordial vote of thanks to Dr Underhill for his address.

II. *Dr Haultain* read his paper on EXFOLIATION OF THE BLADDER, which will appear in a future number of this Journal.

Dr Halliday Croom thought Dr Haultain deserved the highest praise for his most original communication. The question of exfoliation of the bladder was a matter well recognised, but its real nature was not quite so well understood. Hitherto such cases had been described as exfoliation of the mucous membrane alone. From

the cases recorded by Dr Haultain it would seem apparent that in them, at least, not only did the mucous membrane exfoliate, but that the gangrene spread to the muscular and peritoneal tissues, and that they exfoliated and were expelled as well. This much, apparently, Dr Haultain's cases established. It seemed to him (Dr Croom) that the most remarkable part, however, of his investigation consisted in his description and suggestion of what the bladder-wall then was if both its mucous muscular and peritoneal tissues were wanting. It was difficult to see how the walls could consist merely of agglutinated tissues, the walls of other organs, vascularized membranes, etc. That, in the meantime, must remain an open question. Dr Haultain's suggestion as to etiology of the condition, viz., that it is not due to pressure from without, as hitherto averred, seems to be the only explanation which applies to all the recorded cases. He attributes the condition to retention of urine, the pressure being greatest at the base where the vessels enter, and where there is most resistance. Whatever might be the ultimate explanation of these remarkable cases, the work brought before them to-night was both interesting and original.

Dr Milne Murray had listened to Dr Haultain's paper with much pleasure and interest. He thought Dr Haultain had made out a very strong case in support of his view that the bladder had really come away in its entire thickness, though at the same time it was difficult to realize the nature of the sac which took its place, and which apparently performed all the functions of a bladder. Dr Murray thought that Dr Haultain's explanation of the mode in which the necrosis occurred was quite sound. The limited area through which the bladder received its vascular supply, and the directness with which pressure could be brought to bear on this portion, was quite sufficient to account for it. The paper was a valuable and most suggestive one, and indicated an important field of inquiry.

Dr James Ritchie asked if any of the patients reported to have recovered after exfoliation of the whole thickness of the bladder-wall had since died, and if the nature of the new bladder-wall had been ascertained by post-mortem examination.

Dr Berry Hart had listened with great interest to Dr Haultain's valuable paper, but he did not think it possible for the bladder to slough in its entire thickness, as Dr Haultain alleged.

ROYAL MEDICAL SOCIETY.

Nov. 22.—R. O. Adamson, M.B., in the Chair. *James Ritchie, M.B.*, delivered his Presidential Address.

A. Miles, M.B., showed a case of successful Skin Grafting. The patient, a boy of 10, scalded his left leg from knee to ankle a month before admission to hospital. The whole of the skin was

completely destroyed. Six weeks after the accident the ulcer was grafted with the skin of a seven days old puppy. In six weeks more the whole ulcer had healed, and since then, three months ago, the patient has remained well.

Reginald Horsley, M.B., opened a discussion on the probable cause of the injuries found on the body of Mr Rose, as described in the recent trial of *J. W. Laurie*. *James Ritchie, M.B.*, *R. D. Rudolf, M.B.*, *H. H. Littlejohn, M.B.*, *A. Miles, M.B.*, and *J. C. Dunn* took part.

Nov. 29.—*G. W. Sanders, M.B.*, in the Chair. *R. O. Adamson, M.B.*, read his Presidential Address.

Dr C. W. Cathcart read a paper on the Relation of Systematic Lectures to the Teaching of Medicine and Surgery.

J. H. W. Laing, M.B., read a dissertation on the Clinical and Pathological Significance of Albuminuria.

Dec. 6.—*A. L. Turner, M.B.*, in the Chair. *Dr D. Noël Paton* opened a discussion on the Presystolic Murmur. *Dr Paton*, in pointing out that this was the murmur of mitral stenosis, objected to the term *presystolic* as essentially bad, as the murmur might extend through the whole of the diastole of the ventricles. The auriculo-ventricular murmur was perhaps a better name, though this was not so clear as the term mitral stenotic murmur. The general mechanism of the production of murmurs was then touched upon, and the importance of recognising the great factors in their production, viz. :—1. The suddenness and not the extent of the stenosis. 2. The force of the fluid stream. 3. The viscosity of the fluid was referred to. The question was then discussed, If the mitral valve be stenosed, at what part of the cardiac cycle will the murmur occur? Or, in other words, at what part of the cardiac cycle does blood flow through the orifice? A study of the variation in the intra-cardiac pressure leads to this division of the period of flow into the heart,—1. That during the active dilatation of the ventricle. 2. That during the passive dilatation of the ventricle. 3. That during the auricular systole. The strength of the flow during these periods was considered in the light of the *causes* of the flow. The view that the murmur of mitral stenosis occurs at the commencement of ventricular systole was discussed, and the considerations which induced various authors—*Dickinson, McVail*, and others—to maintain this view were given. Tracings from the works of *Martin* and *Edgren* were shown, to prove that the above view was based upon an ignorance of the physiology of the cardiac cycle. The clinical significance of the three parts of the murmur was next discussed, and the view advanced, that the occurrence of the murmur during active ventricular diastole and passive ventricular diastole was indicative of a sound and active state of the ventricular wall. The possible prolongation of the stage due to auricular systole was dealt with, and the clinical significance of the

disappearance of the murmur alluded to. From the loudness of murmur no conclusions could be drawn. It was possible that the condition of the blood exercised an influence in modifying as well as in facilitating the development of systolic murmurs. The true cause and significance of the frequent absence of the aortic second sound at the apex, with its accentuation or reduplication over the base, was discussed. In conclusion, Dr Paton laid stress on the importance of attending to the pulmonary second sound during the progress of a case, and emphasized the value of extrinsic symptoms and signs.

E. G. Pilgrim, M.B., took exception to Dr Paton's statement that "relative constriction of cardio-vascular lumina" was the *essential* cause in the production of murmurs. He thought the influence deeper and more general. No doubt constriction could operate most efficiently in the production of murmurs; but, on the one hand, every cardiac orifice was an example of relative constriction, while, normally, no murmurs could be heard; and, on the other hand, many murmurs existed which constriction *per se* did not explain satisfactorily. Murmurs were, in his opinion, only the audible expression of abnormal frictional resistance and vibration. Hence their great variety of causation and very varying significance, and hence the importance of not ascribing to them any too exclusive physiological basis. He agreed with Dr Paton as to the singular infelicity of the term *presystolic*—a term designed to cover so many diverse phenomena; and he was at one with Dr Dickinson as regards the production of the murmur, viz., the unusual excessive vibration of the thickened mitral curtains and chordæ tendinæ during their period of systolic approximation.

R. O. Adamson, M.B., argued that the true presystolic murmur is diagnostic of mitral stenosis, while the post-diastolic, or early systolic, is not always so, as it may occur when there is mitral regurgitation. He considered the various stages of the cardiac sounds in mitral stenosis of extreme importance, as the failure of compensation in mitral stenosis is indicated by the faintness of the second sound over the mitral area, this being partly due to the increase in size and dilatation of the right ventricle, which, by displacing the left ventricle backwards, enfeebls the second sound at the mitral area.

G. L. Gulland, M.B., drew attention to some points of clinical interest in regard to the murmur of mitral stenosis.

A. L. Turner, M.B., read notes of a case of Rupture of the Spleen and Left Kidney. The patient lived for some weeks after the accident.

Dec. 13.—James Ritchie, M.B., in the Chair. *J. H. W. Laing, M.B.*, showed a case of Cyanosis occurring in a child 5 years old. The child was healthy at birth, and did not become cyanosed till the age of 3. Meantime he had whooping-cough (within a week

of birth), and measles at the age of 2. The patient is deficient in intelligence, has never attempted to speak, and hears very imperfectly, if at all. The cyanosis has gradually deepened, and is now very marked, as is the clubbing of the fingers and toes. He is subject to fainting fits, with no convulsive movements. There is no enlargement of cardiac dulness, and the apex beat is felt in its normal position, while the cardiac sounds, though feeble, are quite healthy. The internal organs appear healthy. The case was evidently one of malformation of heart; in all probability a patent *foramen ovale* existed. The late appearance of the cyanosis is difficult to account for, but may have been due to arrested growth, the valvular curtain not becoming adherent to the edges of the foramen, and not enlarging *pari passu* with the aperture it ought to close.

A. B. Giles, M.B., showed a case of Accidental Vaccination. The patient had a slight wound over the right eye, and in playing with his sister, who had been recently vaccinated, he became inoculated. The appearance was characteristic.

R. D. Rudolf, M.B., read a communication on the Auscultation of Fractures. The object of the paper was to show that much information might be gained by auscultating, as to the nature, extent, and direction of a fracture, particularly in cases where the diagnosis was rendered at all obscure.

D. W. K. Lyall read a dissertation on Antiseptics, their Dangers and Disadvantages.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

DITHIOSALICYLATE OF SODIUM.—Dithiosalicylate is recommended by Dr H. Linderborn as a substitute for the salicylate of sodium (*Revue Générale de Clinique et de Thérapeutique*, 8th August 1889). This body is formed by the combination of two atoms of sulphur and two molecules of the salicylate of sodium. It is a grayish-white powder, very hygroscopic, and very soluble in water. In the urine it does not form the violet reaction with perchloride of iron. In twenty per cent. solution it destroys various bacilli and microbes in forty-five minutes; in doses of three grains, repeated twice in twenty-four hours, it has succeeded in arresting articular rheumatism, even where salicylate of sodium had failed, and has been used by the writer with success in gonorrhœal arthritis without producing gastric trouble, ringing in the ears, or any tendency to collapse.—*Therapeutic Gazette*, November 1889.

ANTIFEBRIN IN QUINSY.—In the *Wiener Medizinische Blätter* for 8th August 1889, Dr W. Sahli writes, that on the second day of a violent attack of quinsy he took 7 grains of antifebrin, and within a quarter of an hour all headache and pain on swallowing or in mastication had completely disappeared. On the next day there was a slight return of pain, which was again almost immediately subdued by the repetition of the dose of antifebrin, and this treatment was continued on each reappearance of pain with the same results, until the disease had run its course.

Dr Sahli refers to twelve cases of quinsy in which four grains of antifebrin likewise produced satisfactory results. The same effect was also observed by the writer in the relief of pain in angina, of an epidemic of scarlet fever and diphtheria. It relieves pain in all movements of the throat, and, by rendering the operation painless, is a great assistance to gargling the throat, especially in children, while, of course, it also assists in the administration of food.

Dr Sahli does not, however, claim that antifebrin is a specific for angina or diphtheria, since the pathological processes are not influenced by its administration. He administers it shaken up in a little spirits and syrup.—*Therapeutic Gazette*, November 1889.

THE TREATMENT OF CHOLERA BY SUBCUTANEOUS INJECTIONS OF PERCHLORIDE OF MERCURY.—In the *Indian Medical Gazette* for July 1889, Surgeon-Major Oswald Baker reports a case of a seaman, aged 22, who was admitted to the Moulmoin General Hospital with well-developed symptoms of cholera. The history of his attack was briefly as follows:—He was apparently well when he turned in on the preceding night, but in the early morning, 2 or 3 A.M., he was taken with profuse purging and copious vomiting, and by the time daylight broke, he was very ill and barely able to stand. He was carried from the gharry, and at once put to bed. A draught containing one drachm of liquor hydrargyri perchloride and ten minims of tincture cannabis indica was immediately given; hot-water bottles were brought for his extremities, and he was allowed ice to suck. The draught was repeated at 2 P.M., but it was not probable it would be kept, for vomiting was constantly occurring, and, in fact, the medicine was forthwith rejected. Mustard plasters were prescribed for the præcordia and the epigastrium. By 8 P.M. his condition was most unpromising; his pulse was rapid, feeble, and irregular in force; his voice, weak and hoarse from the first, was reduced to a whisper. Although there had been no discharge from the bowels since 3 P.M., the vomiting did not abate, and his condition of collapse was becoming extreme.

It was at this stage that $\frac{1}{4}$ of a grain of perchloride of mercury was injected deeply into the gluteal region. Two hours later there was a decided improvement in his pulse, and the state of general collapse was less pronounced. On the following morning it was evident that a reaction had taken place. His vomit, instead of being

colourless, was stained with bile, his pulse was stronger, the voice fuller, and the body warmer. The repeated vomiting of clear bile-stained fluid continued throughout that and the following day, although the nourishment given was generally retained. He voided urine for the first time forty-three hours after the injection was given, the suppression having lasted in all for sixty hours, and from this time forth his restoration to health was sure and steady. Ten days later he had regained much of his strength, and was discharged from the hospital.

Mr Baker states that he was led to employ an injection of the perchloride of mercury deeply into the muscular structure from the fact that its administration in the usual way was frustrated by vomiting, and from the fact that its therapeutic action was, in the presence of collapse, more likely to be exercised in the way it was administered than in the usual way of taking it into the stomach. The solution which Mr Baker employed was prepared after Mr Bloxam's formula, which is—chloride of ammonium 16 grains, perchloride of mercury 32 grains, dissolved in 2 ounces of distilled water. This solution is said to be permanent, and ten minims contain a third of a grain of the perchloride. Mr Baker further adds that he has injected ten minims of this solution into the gluteal region of two hundred and twenty persons (not suffering from cholera). In these cases the injection was always followed by some swelling, which, in the majority of cases, took more than a week to disappear. Slight pain was produced by the injection, but, on the whole, the local inconvenience following the operation was insignificant—neither ulceration, suppuration, nor any obvious constitutional derangement was roused. The best site for the introduction of the needle appears to be on a line with the great trochanters, and some two inches internal to them, but absolute precision is not necessary. —*Therapeutic Gazette*, November 1889.

OCCASIONAL PERISCOPE ON DISEASES OF THE TROPICS.

By R. W. FELKIN, M.D., F.R.S.E., Lecturer on Diseases of the Tropics and Climatology, Edinburgh School of Medicine.

Dr H. V. CARTER, Professor of Medicine, Bombay, has published an account of Some Aspects and Relations of the Blood-Organisms in Ague. His researches confirm in many ways the observations made by Laveran, Machiafava, Osler, and Golgi, but his observations differ in some respects. His investigations are based upon the examination of 73 cases of malarial fever, and control experiments in 27 cases of non-malarious fever. Pigmented organisms, which were solely confined to the malarious cases, were found in 13 per cent. With regard to this percentage, however, he states—"I consider it open to personal judgment whether or not the presence of even a very few pigmented red blood discs and

white cells should entail a positive diagnosis of actual malarial infection. Were the affirmative strictly maintained, I doubt not some of the instances above would be differently estimated, and the percentage correspondingly increased. With regard to seven malarious patients who were 203 days in hospital (of which 40 were fever and 163 non-fever days) the blood was examined usually twice, and frequently oftener, on 127 days (of which 29 were fever and 98 non-fever days), blood organisms being found on 109 days, and not seen on 18 days of later convalescence after fever. We have not space to refer to the cases which are given in detail, but will very briefly quote his summary of the whole of his investigations, remarking in passing that the paper is well illustrated by careful drawings of blood-organisms observed by the author. "I consider there is proof enough that the genuine 'ague-state,' the 'malarial process' in older term, and in new the 'malarial infection,' is pathologically distinguished by a visible living blood contamination: (a), having hæmatozoic rather than hæmatophytal affinities; (b), and displaying a relation to clinical symptoms which, often less precise than obtains with pathogenic bacterial infections, may none the less be real; (c), further, it has been shown that in arresting malarial pyrexia the drug quinine does not with equal promptitude annihilate the blood parasite; (d), this datum also indicating a probable different relationship of phenomena in the monadic as compared with bacterial infection. That the hæmatozoa, undoubtedly present in ague, hold a close if not causal relation to that disease, may be inferred from—first, their constituting an adequate pathogenic influence; and next, their exclusive limitation to this one morbid affection; nor need such influence be annulled by seemingly conflicting evidence regarding the details of association. According to my observations, the visible blood contamination may be more constant and uniform than concurrent pyrexial phenomena; and hence the inference that it is fundamental, whilst 'fever' is rather a contingent event. Certainly not all fever in malarious subjects is necessarily monad-pyrexia; and by experience I have been led to recognise at least three forms of such 'fever,' namely, first, the genuine specific form, with its positive blood-aspects; next, and oftener in old cases, the consecutive residual or quasi-reactive form with its negative blood state, which may have simulated the genuine type in a clinical sense; and lastly, the pyrexia pertaining to a superadded infection, which for a time supersedes the monadic,—as, for example, was demonstrated for enteric fever by Dr Laveran. As to nature and causation, I would add that present results serve to explain the paroxysmal and periodic character of palludal fever, through the corresponding definite duration and reproduction of a living contagium. That such pathogenic agents should be zoöic rather than phytal, is a datum of etiological import; because infusorial life is known to prevail under different and more restricted condition than the bacterial, and hereby a clue may be gained as to

the sources of ague infection. The foreign and nondescript term of 'malaria' adopted in Britain since 1827 may soon have to be abandoned, if not in favour of the prior indigenous name of 'marsh' poison, at least of a designation referring to definite conditions of soil, moisture, and water supply."—*Scientific Memoirs by Medical Officers of the Army of India*, Part III., 1887. Calcutta, 1888.

WITH regard to the influence of malarial fever on the puerperium, Dr V. E. Krusenstern of Tiflis has recently published a paper. His views may be summarized as follows:—Malarial fever generally, and its remittent form in particular, does not retard the post-partum involution of the uterus. He states that in cases where women have suffered from malarial fever, the uterus has decreased in size as in normal cases. He thinks that the sub-involution in malarial puerperal women, which has been described by many authors, is due to an intercurrent endometritis complicating the fever, and not to the malarial poison itself. He goes on to state, however, that the malarial poison, if attacking a puerperal woman, affects the mammary secretion, diminishing it most markedly.—*Transcaucasian Lying-in Hospital Reports*, 1889, p. 59.

SURGEON W. F. THOMAS, M.R.C.S., of the 17th Regiment, M.I., has just written a paper on Beri-beri. He says that Dr Ogata of Tokio University has discovered a specific bacterium. Also that Drs Pakelharing and Winkler of Utrecht claim that the cause of beri-beri is a micrococcus, and is therefore to be classed with infectious diseases. Dr Thomas states that in a very large number of the cases he met with, the proximate cause was due to the presence of *anchylostoma duodenale* (a genus of hematoid worm) in the intestinal canal, and that the severity of the disease was in proportion to the number of these parasites present. Most authors classify the disease as follows:—1, Acute; 2, Sub-acute; and 3, Chronic. Others group it under three heads, thus—1, The wet or dropsical form; 2, the dry or atrophic form; and 3, the mixed form. Dr Thomas prefers the following classification:—

Acute.—Symptoms, pyrexia, rapid general anæmia and anasarca. The pulse rapid. Dyspnoea is present, the breathing hurried, irregular, and painful. There is also dulness on percussion, slight cough and expectoration. The urine is scanty and almost suppressed. Serous effusions take place into the cavities, chiefly pleural and pericardial. Peripheral paralysis is well marked. Marked nervous depression is present.

Sub-acute.—Here the patient complains of pain at the epigastrium. There is loss of power in the lower limbs, with loss of sensation. The muscles lose bulk and become flabby, and there is loss of irritability to mechanical and electrical stimuli. The gastrocnemii are at first swollen and then shrink. There is loss of patellar tendon reflex. The face is pale and puffy; the lower limbs cedematous. There is tremor of hands and lips. Decubitus

is dorsal or to the right side. The patient speaks in a peculiar manner. Dyspnoea, vomiting, and jaundice are present. Hæmic bruit audible at the cardiac base and over the large cervical veins. There is precordial pain. The apex beat is indistinct. There are heard a soft systolic bruit at apex, and a loud, harsh systolic bruit at base, loudest in aortic area. There is no indication of cardiac hypertrophy or dilatation. Mental debility is very marked.

Chronic.—In this variety there is no rise of temperature. The face is puffy, swollen, and livid. There is tenderness of the adductor muscles of the thigh and also of the gastrocnemius. There is prostration. The patient is very anæmic and suffers from palpitation. There is loss of appetite. The pulse is quick and small. At times an aortic systolic bruit is audible. It is here that solid cedema of the lower limbs reaching as high as the knee-joints is noticed, with numbness and pain. The gait is tottering, and dilatation and hypertrophy of the heart is present.

With regard to the treatment of beri-beri, Dr Thomas believes that the only appropriate method is the expulsion of the parasites from the intestines by giving small doses of calomel frequently till free purging has set in, or by the administration of thymol, proper dietetic rules being also observed, and the patient being removed from the beri-beri area. He believes other treatment to be of no avail. In order to expel the parasites, he used half grain doses of calomel every half-hour until free purging had set in, and then a mixture containing the tincture of the perchloride of iron and tincture of hyoscyamus (xv. ℥ doses). He found that after the expulsion of the worms large doses of the tincture of hyoscyamus internally with hot baths on alternate days were very successful.

The general principles of the treatment of beri-beri Dr Thomas gives as follows:—"1. Hygienic—such as proper ventilation, suitable food (increase in nitrogenous elements, etc.) 2. Prophylactic—protection of the individual from those influences which are said to be sources of the disease, and removal to a healthy place. 3. Remedial and therapeutic agents—expel the parasites and so restore your patient to health, maintaining his strength and promoting general comfort by stimulants and tonics—iron, quinine, strychnine; by relieving symptoms: promote removal of cedema by small punctures, by elevation of the feet, by bandages, and by internal administration of scopolarium, elaterium, jalap; when want of sleep is present, administer sedatives, as belladonna, chloral, and bromide of potassium; for paralytic symptoms, give tincture of aconite in ℥v. doses, with quinine 5 grains per dose, followed by strychnine; for heart trouble, give nitro-glycerine from 2 to 10 drops of the 1 per cent. solution in rectified spirit, strophanthus, digitalis, or dry-cupping; for large internal serous effusions, perform paracentesis thoracis or paracentesis abdominis, as the case may be; by taking precautions against the supervention of complications or accidents; to maintain or restore the healthy tone of his nutritive functions;

to regulate the functions of the abdominal viscera; and to promote the free action of his emunctories by diuretics (potassæ acetatæ, digitalis, squills, etc.), and diaphoretics, such as hot-air baths, etc." In many of his cases, Dr Thomas passed a small trocar and cannula where there was pericardial effusion, and thus removed the fluid.

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

Dr R. B. M'CALL, of Georgetown, stopped a very severe and dangerous hæmorrhage from the palm of the hand by a pad on the bleeding point, pressed down by means of a bow-shaped piece of wood which was kept in place by a string tied over the back of the hand. He recommends a piece of whalebone and elastic band when they can be got. By such means the pressure is limited to the bleeding point, the rest of the hand being unconstricted.—*International Journal of Surgery*.—March 1889.

Dr GERSTER, of New York, says that good results after tendon suture (tenorrhaphy) depends on antiseptics and on the intelligent co-operation of the patient in carrying out orders, as much as on careful suture. Passive movement and massage must be employed early and regularly.—*Ibid*.

Prof. STIMSON, of New York, in cases of ganglion of the wrist, dissects the sac out, ligaturing the connexion with the synovial membrane if such exists.—*Ibid*.

Dr WYNNE (St Bartholomew's) says that outgrowths round the articular cartilage are cartilaginous in rheumatoid arthritis and osseous in gouty arthritis associated with deposits of urates.—*Lancet*, 11th May 1889.

Dr M'BURNEY, of New York, operates for radical cure of hernia (inguinal) by thoroughly opening up the canal, cutting away the sac after ligature, and stitching the skin to the deeper structures on each side so as to make an open wound which should heal by granulation. Five or six weeks are necessary for complete healing of the wound. The results are very satisfactory according to Dr M'Burney, Dr Stimson, Dr Gerster, and Dr Abbe.—*N. Y. Med. Journ.*, 23rd March 1889.

Dr LANGE, of New York, when removing the kidney turns forward a flap by making three incisions—one along the eleventh rib, another above the crest of the ilium, and the third, joining these two, along the outer border of the erector spinæ. In this way he obtains considerable space.—*N. Y. Med. Journ.*, 9th March 1889.

Dr LEWIS A. STIMSON, of New York, prevents shock from an operation by giving a hypodermic injection of atropine $\frac{1}{16}$ to $\frac{1}{8}$ of a grain before the administration of the anæsthetic.—*Ibid*.

Dr STIMSON treats recent fractures of the patella by subcutaneous ligature with silk. Four slight cuts or punctures are made around the patella, one on each side of the ligamentum patellæ and one on each side of the extensor tendon. By these punctures a ligature is passed, commencing at one of the lower punctures, *through* the ligamentum patellæ close to the patella, then subcutaneously to the corresponding upper puncture, then *through* the extensor tendon close to the patella, and, lastly, subcutaneously down to the puncture by which it first entered. The silk is then drawn tight and tied. In this way the two fragments of the fractured patella are drawn firmly together and retained there.—*Ibid.*

MAMMILLAPLASTY.—This name is given, by Dr Oxford of Chicago, to an operation he has devised for curing a retracted nipple. The nipple is drawn out by volsella forceps, then three slips of skin are removed from an area immediately around the nipple, and in a direction radiating from the nipple. A suture is then passed in and out round the nipple, "purse-string fashion," and tied. This suture keeps the nipple from retracting till the radiating cicatrices have time to contract. Dr Oxford performed this operation with success on a young woman who had been unable to nurse her first two children, but was able to nurse the third, six months after the operation.—*Annals of Surgery*, April 1889.

PULMONARY SURGERY.—Experiments on cadavera undertaken by Dr Zakharevitch of Kharkov to decide—1, which ribs should be excised to remove a portion of lung, and 2, where a counter opening can best be made for drainage. To extirpate the upper two lobes the second rib should be excised; the third rib for the lower lobe. The best drainage is by the eighth interspace.

Pneumonotomy for Pulmonary Abscess.—Professor Opensovaky, of Dorpat, says that the operation is not very dangerous to life, one-half of the cases operated on having recovered (9 out of 18, and 6 completely). Thorough drainage is essential. Adhesions are of great importance in preventing empyema and lung collapse.—*Annals of Surgery*, April 1889.

Dr J. CRAWFORD RENTON of Glasgow records two successful cases of removal of the astragalus for talipes varus. The result was most satisfactory.—*Lancet*, 16th March 1889.

Mr RICHARD DAVY, F.R.C.S., recommends excision of the scaphoid for flat-foot. The foot remains flat, but is useful and free from pain. Two patients operated on were shown to the Medical Society of London.—*Lancet*, 6th April 1889.

Mr GOLDING-BIRD, F.R.C.S., considers that operative treatment for flat-foot should very seldom be employed. The arch of the foot cannot be restored, nor a spring imparted to the gait by removal of any bone, or by production of ankylosis in any part of the foot. It is only for pain that any operation can be necessary, and this

symptom is generally relieved by mechanical means. Mr Golding-Bird points out the great varieties of flat-foot that are met with; and yet he says that flat-foot and talipes valgus "may be considered as synonymous." He does not describe the mechanical means which he recommends.—*Lancet*, 6th April 1889.

MR WILLIAM H. BENNETT, F.R.C.S., says of varicose veins, that they are more common in females, are more common on the left side than on the right, but are most commonly met with on both legs. Constipation (combined with pregnancy in females) was the most frequent cause. Heredity could be traced in a considerable number of cases. In about a third of the cases the disease was first noticed before the age of twenty-five, and in another third between that age and forty years. As complications, ulcer was most common. There were noticed also œdema, eczema, thrombus, and hæmorrhoids. These facts were drawn from an analysis of 574 cases.—*Lancet*, 1st June 1889.

DR F. S. WATSON of Boston, in reporting a case of supra-pubic cystotomy for hæmorrhage from the bladder, recommends this operation in such cases where the source of the bleeding cannot otherwise be reached or controlled; in cases where there is frequent desire to empty the bladder accompanied with pain, and requiring the use of the catheter; and when there is septic cystitis with enlarged prostate. He considers that the operation will give comfort to the patient, and is not so dangerous to life as leaving the patient without relief would be.—*Boston Med. and Surg. Jour.*, 7th March 1889.

DR DILLON BROWN of New York has operated on two hundred cases of diphtheritic or membranous laryngitis by intubation. Of these fifty-four recovered. Of the fatal cases life was prolonged on an average for three days. The tube was left in for about five days in the successful cases.—*New York Med. Jour.*, 9th March 1889.

MR MAYO ROBSON described, before the Clinical Society of London, a simple method he had employed successfully in the treatment of fracture of the patella. He passed two large steel pins transversely through the skin and tendon, the one above the upper fragment, and the other below the lower fragment. Traction on the pins brought the two fragments easily and accurately into apposition.—*Lancet*, June 1, 1889.

MR HARRISON CRIPPS, F.R.C.S., having performed colotomy for malignant disease thirty-seven times—fifteen times in the lumbar, and twenty-two times in the inguinal region—states that he considers the latter the superior operation. It is easier, less dangerous to life, takes a shorter time to perform, and enables the abdominal cavity to be explored if necessary.—*Med. Press and Circular*, 10th April 1889.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—The following gentlemen passed their final examination for the degrees in Medicine at the sittings held on the 19th December 1889, and were admitted L.R.C.P. Ed.:—John Forrest Dickson, Oregon, U.S. America; Richard Pryce Mitchell, London.

MEDICAL MAGISTRATE.—Matthew James Turnbull, M.D., F.R.C.S. Edin., of Tweed View, Coldstream, Berwickshire, has been put upon the Commission of the Peace for that county. An admirable example to other counties, for a wise, experienced medical man is most suitable for such work.

WE have received from Messrs STERN, of London, the following preparations of Pumiline:—(1.) "Pumiline Essence," which is a fine specimen of the essential oil of the leaves of this pine. (2.) "Pumiline Liniment," which is a mixture of this oil with olive oil and chloroform, and which is a liniment we can highly recommend. (3.) "Pumiline Ointment." This ointment contains the essential oil, and also contains lanoline, oleate of zinc, ceresin, and olive oil. This is a very valuable ointment for abraded surfaces, etc. (4.) "Pumiline Soap." This soap is made with lanoline, and is valuable as a disinfectant soap, and is specially well suited for delicate skins. (5.) "Pumiline Jujubes." Each jujube contains one minim of the essential oil, and will be found specially useful in affections of the mouth and throat. (6.) "Pumiline Extract." This extract is meant for medicating baths, and will be found useful in many skin affections.

We have pleasure in commending these preparations to the favourable notice of the profession.

CORRESPONDENCE.

WIND INJURIES FROM GUNSHOT: CASE OF DR SAMUEL ALEXANDER PAGAN.

(To the Editor of the *Edinburgh Medical Journal*.)

SIR,—There has been a large amount of correspondence lately in some London newspapers on the effects of what is popularly known as the "Wind of a Cannon Ball." Until these letters appeared I had supposed that the notion of a shot having the power of inflicting injury by simple passage through the air near the body of a person, without actual contact, had disappeared from the minds of laymen, as it has long done from the minds of surgeons. Sir Robert Rawlinson, K.C.B., gave a description, in the *St James's Gazette* of the 26th ultimo, of the superficial wounds inflicted upon his person, and of the damage done to the clothes he was wearing, by the glancing contact of a 42 lb. Russian steel shot; and if his description did not

suffice to prove that the shot was unaccompanied by any potent influence of the nature of wind-pressure for harm, I do not imagine that any illustration of a similar kind would be likely to do so. The revival of the topic has, however, led me to refer to some correspondence of mine which took place a quarter of a century ago with the late Dr Pagan of Edinburgh, a great part of whose external ear was shot away at the battle of Waterloo without any grave lesion of the deeper structures; and as certain stories used to be told regarding the treatment of Dr Pagan's wound which were by no means calculated to do justice to the surgeons by whom he was attended, and as I believe no accurate account of the case exists in print,¹ it has occurred to me that the correspondence may now be worth publication. At any rate, I place the correspondence at your disposal in case you think it of sufficient interest to be recorded in the *Edinburgh Medical Journal*.—I am, Sir, yours, etc.

Army Medical School, Netley,
December 1889.

THOS. LONGMORE,
Surgeon-General R.P.; Prof. of Mil. Surgery.

The following is part of a letter written from Edinburgh in the year 1864 to a friend at Netley, and is only inserted to show some of the stories then current, even among friends of Dr Pagan, respecting his wound:—

"MY DEAR —, I dined with Professor Syme yesterday, and knowing him to be an intimate friend of Dr Pagan, I took the opportunity of inquiring about his wound. Dr Pagan, at that time a Lieutenant in a foot regiment,² was standing talking to two other officers on the field of Waterloo, when a round shot took off his ear and killed both the officers with whom he was conversing."

"Dr Pagan was very little injured by the wound, no head symptoms following. A portion of the ear was recovered, and unfortunately sewed on the wrong side uppermost. So much for the military surgery of that day."

The following two letters are from Dr Pagan himself:—

EDINBURGH, 27th May 1864.

MY DEAR SIR,—I was very glad to hear from you this morning, and though my memory has not improved by age (now above 70), I shall endeavour to give you a short account of my narrow escape at Waterloo, and of the nature and effects of my wound. Late in the afternoon of the 18th—our third day—we were standing or sitting as ordered between the charges of the French cavalry, when a ricochet shot plunged into the company I was commanding, and committed a good deal of havoc. An officer of our grenadiers had

¹ Dr Hennen, in his remarks on "Injuries of the Ear," refers to Dr Pagan's case, though without mentioning his name, in the following terms:—"I have met with a case where the external ear was completely removed by a cannon ball, and yet the sense of hearing is as acute as ever." The last part of the statement is not strictly correct, as Dr Pagan's letters show. See *Principles of Military Surgery*, by John Hennen, M.D., etc. 3rd edition. London, 1829, p. 352.

² The 55th Infantry regiment.

his arm shot away, striking him near the shoulder-joint, and killing him at once. Several men in the same group also were killed, as I afterwards learned. For myself, I thought my jaw was smashed. I was speedily put on a stretcher and carried to a small church which was used for a field hospital. Before reaching it, however, one of my bearers was struck in the ham, and I came heavily to the ground; after which I began to recollect myself somewhat, and directed one of my men to take care of my wounded bearer, but he speedily rejoined us, and said the poor fellow had very soon turned up his eyes and died. Well, this is not much to the purpose. My wound was bleeding a good deal. I was treated with great tenderness and care, had a little brandy, and began to think there was life in a muscle yet. The short and the long of it is, I was treated most skilfully—a good deal of *debris* was cut off by scissors, and part of the lobe of the ear was bandaged up in the dressings, giving it a chance of adhering. I was taken to Bruxelles in the course of the night, and had the honour to be under the charge of Inspector Somerville, and afterwards of Jeys of the 15th Hussars. In a few weeks, all feverish symptoms having passed off, I, with others, was sent home. The wound was retarded by some tedious exfoliation of the malar bone, which prevented cicatrization for nearly six months. There was a slight opening into the meatus, which was carefully preserved and enlarged by a tent; and now, when my age has made me rather hard of hearing on the other side, I find this the best side of the two. I think Hennen mentions my case without names. Sir G. Ballingall always did in his lectures, as did his predecessor Dr John Thomson, who also had a drawing of the case. I gave up practice a year or two ago, and parted with my medical library, so that I cannot answer some of the queries. “Non sum qualis eram.” Believe me, very truly yours,

S. A. PAGAN.

EDINBURGH, 5th June 1864.

DEAR SIR,—I had the pleasure to receive yours of the 30th ulto., and reply to your questions (so far as my memory serves me) most willingly. In the first place, it is quite evident that the mechanism of the *internal* ear is quite uninjured, but it is putting the matter rather too strongly to say that the hearing was *not at all* impaired. It would have been more correct to say that the hearing was duller but not destroyed, and that from the *rima*¹ which admits the undulations of the air having its opening rather backward, I hear a voice from behind better than when face to face. I have at all times, also, a singing on the left side, which ceases to disturb now, after about fifty years' custom, but which no doubt has the effect of confusing my hearing in a slight degree. The lap of the ear appears to have hung by a thread, and was tucked up and put into contact with the *raw* surface of the antitragus, and the

¹ Query, fissure-like aperture in the cicatrix of the wound?

adhesion was complete. The only bone that was any wise injured was the cheek-bone, immediately in front of the tragus, and from it there was some slight exfoliation.

Perhaps I should have said that in the stupefaction of the moment I thought the half of my face was smashed instead of half my jaw.

Professors Thomson and my friend Ballingall always touched on my case as the best evidence they could adduce of there being no truth in the popular notion that the wind of a cannon ball might be fatal without any actual contact of the ball. Many of my brother officers declared that they saw my brains distinctly on my jacket, but doubtless they must have belonged to some other less fortunate wight.—Believe me, dear Sir, very faithfully yours,

S. A. PAGAN.

P.S.—The only ill effect that this wound had on my general health was that of heat causing me headache, so that I was strictly forbidden to serve in the East or West Indies. So I took back to the profession of medicine, for which I had been originally intended, and thereafter practised in Edinburgh for about forty years, was President of the College of Surgeons, etc., and, indeed, for thirty-one years was never off work for an hour.

S. A. P.

PUBLICATIONS RECEIVED.

- Sir W. AITKEN, M.D., etc.,—On the Animal Alkaloids. H. K. Lewis, Lond., 1889.
- H. W. ALLINGHAM, F.R.C.S., etc.,—The Treatment of Internal Derangement of the Knee-joint by Operation. J. & A. Churchill, Lond., 1889.
- Dr H. BREHMER,—Mittheilungen aus Dr Brehmer's Heilanstalt für Lungenkranke in Görbersdorf. J. F. Bergmann, Wiesbaden, 1889.
- W. W. CHEYNE, M.B., F.R.C.S.,—Suppuration and Septic Diseases. Young J. Pentland, Edin., 1889.
- J. M. COBBAN,—Master of his Fate. Wm. Blackwood & Sons, Edin., 1890.
- C. J. CULLINGWORTH, M.D.,—A Manual of Nursing. J. & A. Churchill, Lond., 1889.
- J. N. DEMARQUAY,—Essay on Medical Pneumatology. F. A. Davis, Philadelphia, 1889.
- J. MATTHEWS DUNCAN, M.D., etc.,—Clinical Lectures on the Diseases of Women. J. & A. Churchill, Lond., 1889.
- R. W. FELKIN, M.D., etc.,—Geographical Distribution of some Tropical Diseases and their Relation to Physical Phenomena. Young J. Pentland, Edin., 1889.
- S. FENWICK, M.D., etc.,—Clinical Lectures on some Obscure Diseases of the Abdomen. J. & A. Churchill, Lond., 1889.
- J. M. FOTHERGILL, M.D.,—The Town Dweller, his Needs and his Wants. H. K. Lewis, Lond., 1889.
- Prof. P. GEDDES and J. A. THOMSON,—The Evolution of Sex. Walter Scot, Lond., 1889.
- G. M. HUMPHRY, M.D., F.R.S.,—Old Age. Macmillan & Bowes, Cambridge, 1889.
- LAURENCE HUMPHRY, M.A., M.B., etc.,—A Manual of Nursing. Charles Griffin & Co., Lond., 1889.
- W. BEVAN LEWIS, L.R.C.P.,—A Text-Book of Mental Diseases. Charles Griffin & Co., Lond., 1889.
- ALEX. MACALISTER, M.D., etc.,—A Text-Book of Human Anatomy. Charles Griffin & Co., Lond., 1889.
- H. M'CLURE, M.D.,—On Static Electricity in Medicine. Henry Renshaw, Lond., 1889.
- E. MAY, M.D.,—On the Pathology and Treatment of Diphtheria. J. & A. Churchill, Lond., 1889.
- Medical Communications of the Massachusetts Medical Society. Boston, 1889.
- NORMAN MOORE, M.D.,—Pathological Anatomy of Diseases. J. & A. Churchill, Lond., 1889.
- WM. MURRELL, M.D., etc.,—Chronic Bronchitis and its Treatment. H. K. Lewis, Lond., 1889.
- M. J. RAE, M.D.,—A Practical Treatise on Eczema and its Treatment. J. & A. Churchill, Lond., 1889.
- JOHN V. SHOEMAKER, A.M., M.D., and JOHN AULDE, M.D.,—A Treatise on Materia Medica, Pharmacology, and Therapeutics, Vol. I. F. A. Davis, Philadelphia, 1889.

Part First.

ORIGINAL COMMUNICATIONS.

I.—DISEASED CRAVINGS AND PARALYSED CONTROL: DIPSOMANIA; MORPHINOMANIA; CHLORALISM; CO- CAINISM.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(Continued from page 521.)

Dipsomania.—Dipsomania has never been satisfactorily defined, any more than insanity has been defined. But if we cannot define insanity in the abstract, we agree in the main as to what it is in the concrete. That is certainly not the case with dipsomania at present. The word is used in the loosest way both in the profession and out of it. It has come to be a synonym for drunkenness in popular estimation. It is exceedingly common for our profession to describe any kind of alcoholic insanity as "dipsomania." Still more common is it for patients unquestionably insane, who have delusions, or who have maniacal excitement, or who have suicidal tendencies, or who are subject to epilepsy, but have in addition strong cravings for alcohol, to be called dipsomaniacs. Before we can understand or treat of the disease in any sort of scientific or clinical way we must come to some more definite use of the term. We must, in the first place, confine the term to that form of disease where the lack of inhibition or the morbid intensity of impulses are the real departures from normal mentalization. If we have a patient with simple coherent mania,—that is, with distinct mental exaltation, sleeplessness, restlessness, talkativeness, changed habits, loss of common sense, unsettledness, loss of control over temper, morbid brilliancy of imagination, and hyperæsthetic memory, we must not call such a man a dipsomaniac, though he drinks excessively, and has all his symptoms aggravated by it, and has an intense craving to get it, over which he has no control, lying to get it, cheating to get it, and stealing it. This particular lack of self-control or craving is then only one of the symptoms of an ordinary form of mania. It may be a very outstanding and troublesome symptom, and the most hurtful one to the patient, but it is unscientific to take any one symptom of a general brain disease and ticket it as the disease itself. We might as well call a pneumonia a dyspnoea or a cough. I have had cases

of simple mania by the dozen where excessive drinking was one of the earliest and most pressing symptoms. I had one case of irregular *folie circulaire*, amongst many such, whose excited period always began by excessive brandy drinking in company, and whose melancholic period was always liable to heavy solitary drinking to relieve his mental pain; who actually brought on short attacks of delirium tremens when suffering from simple mania on two occasions by such morbid drinking; who certainly could not control his craving; in whom the keeping drink from him was the most troublesome and difficult, but yet a perfectly essential, part of his treatment, and in whom this restraint from drink, I had reason to believe, shortened the attack of maniacal elevation. His reasoning was very acute, he had almost no delusions, and he was perfectly coherent. Why was he not then a dipsomaniac? Simply because I had clear evidence that a morbid brain elevation preceded the tendency to drink; that he had lost control in many directions besides drinking; that he was changed intellectually, affectively, and morally; and, in brief, looking at his case clinically as a whole, that it was one of *folie circulaire*. Cases of this kind, or those subject to periodic or occasional recurrences of simple brain exaltation, are very common, and only some of them have drinking as a symptom. They should all be excluded from the category of dipsomaniacs.

Then we have many cases of simple melancholia in which drinking is a symptom. The patients find that its effect on their brain is to deaden their mental pain, and to substitute for it a kind of transitory happiness, or confusion, or a partial lethargy. As a part of their melancholia, their inhibition is lessened, and so the desire for drink for this purpose cannot be resisted. The longer it is taken, the less becomes the power of control. But the direct effects of alcohol and all such substances that act specially on the functions of the higher brain centres being to lessen inhibition by constant use, a positive craving is soon set up. I had one such patient, who, on each of the many attacks of simple melancholia she had, became to her husband and to her doctor "a dipsomaniac" in this way. But, in my judgment, she suffered from melancholia, and her taking to drink at first was a deliberate attempt at self-therapeutics. There was not to begin with a craving for drink at all. My reasons for this conclusion were that the symptoms began by mental pain, a suicidal feeling, morbid suspicions, loss of power to do or think of work, lack of interest in everything, a conscious loss of affection for her husband and children, sleeplessness, loss of appetite, and falling off in flesh,—all these preceding the drinking. Then the symptoms, under proper treatment, ran the course of an ordinary case of melancholia. Clinically it was melancholia, not dipsomania. I have another case of melancholia in my mind that has become chronic, where all along a craving for drink is a symptom,

and her friends thought her case one of dipsomania. But she was sent to the Asylum after an attempt at suicide, and I had no doubt, during her residence there, that she suffered from melancholia. She had many of the ordinary concomitants of dipsomania, viz., untruthfulness, laziness, want of proper interest in husband and children, and lack of self-respect in regard to the conventionalities of life. It is most important to ascertain if there is a melancholic element preceding the excessive drinking.

Then I have known many epileptics with intense and quite uncontrollable cravings for drink, but the greater certainly includes the less here, and it would be improper to call such cases dipsomaniacs. I have many epileptics in the Asylum that I cannot let into town on pass simply because they cannot resist the craving for drink, and will beg, borrow, or steal anything to get it. I don't know any class of human beings more likely to acquire a dominant craving for drink than some adolescent epileptics. It aggravates all the symptoms of the peculiar psychoses of epilepsy—the impulsiveness, the irritability, the homicidal and suicidal tendencies. An epileptic maniac is often bad enough, but a drunken epileptic is likely to be a demon incarnate.

There are many cases of mild mental enfeeblement (dementia) resulting from acute primary attacks of mania, who take to drink as a symptom of such mental enfeeblement, and have no power to restrain themselves. Such patients are often so apparently well in asylums that they get discharged as "recovered." It is only the rough, but real tests of life in the outer world that bring out their weak points. I was once sent for to see an old patient who had had originally an attack of acute mania and apparently recovered, and had gone to live alone. I found him dirty and drunk, and his room simply filled with bottles that had once contained whisky. I put him under care, but found that after stopping the drink, bringing up his general health, and making him conform to the ways of ordinary life, his mind was permanently weakened. He had no active craving for drink. He rather liked it, and his power of control was diminished. He never asked for drink in the Asylum, and never tried in any way to get it. Yet when he left, he went back to his old drinking ways. I do not call such a man a dipsomaniac, but a mild dement.

There are cases of delusional insanity and paranoia who have the drink craving strongly as one symptom. I have now a gentleman patient who is very irritable, has delusions of persecution, and has periods of slight excitement as well, who has an extraordinary craving for liquor at all times. He is so easily affected that one glass of beer will make him quite hilarious and agreeable. He will do anything for drink; yet he is not a dipsomaniac in any true sense.

I have now a case of general paralysis, who, during the time before he showed any real sign of insanity or any special paralysis, took to drinking excessively, that being entirely contrary to the

practice of his former life. Had general paralysis not come on, he would have been a true dipsomaniac, for the chief symptoms of his disease then present was a loss of control over a lower appetite and a craving for alcoholic stimulants. A very careful analysis of his intellectual and affective condition for that year no doubt showed slight changes, but not more than the effects of the drink he took might have accounted for. In that case every one would agree that it would be incorrect to ticket the temporary mental change by the name dipsomania, for it was clearly a part of the general mental disruption marking the beginning of a grave organic cortical disease.

I can recall many other cases where, as an early mental symptom of brain softenings, of tumours, of brain syphilis, and other organic diseases, patients took to excessive drinking, and evidently could not control those morbid cravings. One such case particularly impressed me. It was that of a professional man who had lived a studious, laborious, self-denying life up to 56. He then took to unrestrained and shameless drinking, losing his position and destroying his reputation. No other signs of "insanity" were seen in him then. Those who knew him most intimately saw that a subtle change otherwise had come over him intellectually and morally. I saw that his pupils had become unequal and not regularly contractile to light, that there was a faint asymmetry of his face when its muscles were in action, and that his walking and equilibration generally were very slightly defective. But he was subtle in argument, especially in excuse for his over-drinking. In about two years from the time of the sudden development of the drink craving he took an attack of hemiplegia on the same side as I had noticed the slight flattening of the face. I had no doubt whatever that the drinking was simply an early sign of the brain starvation and softening of arteritis, which afterwards caused the paralysis and death. I found, on careful inquiry, that even before he began to drink he was not doing such original work, and that his force of mind, which had been very great, had abated. It may be said that in such a case it was the excessive drinking that caused the first brain damage. In the light of my own examination of his symptoms, I am certain that the brain disease had begun before the drinking, and had caused it. I am sure that many cases of brain softening are attributed to drink that were really of other origin. No doubt the drink will hasten on any change that has already begun in the brain.

Brain syphilis is especially apt to cause lack of control over conduct and immoralities, amongst which excessive drinking stands prominent as one early symptom. Probably this is because brain syphilis is so apt to affect the mental area of the brain cortex by gummatous deposit or arteritis.

Perhaps one of the most sad forms of drink craving with lack of control is where it develops as one of the early signs of the

breakdown of senility. I have seen many such cases where lessened inhibition was the first sign of senile brain degeneration. I have seen many men of unblemished, self-controlled lives up to 60 or 70 who then took to drinking, and were senile dotards within a few years thereafter. Taken together, most of the cases where men at that age, of good character, take to sexual immoralities, to low company, to acts of dishonesty, and who change in their tempers, becoming irritable and violent, and where drinking is a prominent symptom, should be more correctly put down as due to senile brain decay, than called dipsomania.

In considering all such cases where uncontrollable craving for drink is seen as an early symptom of marked forms of insanity, of incipient organic brain disease, or of commencing senile degeneration, we must take the heredity of the patients into account, and the education to which the brain had been subjected in youth, as well as the motives that had operated with force during the controlled part of the life. The heredity towards weakened mental control in regard to drink and otherwise may be put down as very general,—indeed, in most Teutonic countries, as de Quincey says, “our northern climates have universally the taste latent, if not developed, for powerful liquors.” During last century few persons who were not under strong moral or religious motives seemed to exercise very much control over any tendency they had to drink excessively. We their descendants, as a matter of fact, don’t drink as hard. Why? There must be motives operating strong enough to counteract our evil heredity, and to enable us to exercise inhibition over our latent cravings. Our education is all in the direction of inhibition now; public opinion, too, tells as strongly against as it did formerly for excessive drinking.

What happens in the cases I have been adducing seems to be this. The patients probably knew quite well intellectually that the excessive indulgence in drink meant social disgrace, and that such excess was morally wrong. But whereas in sound brain health the effects of education and the higher instincts of morality and public opinion, with a normal power of brain inhibition, kept them straight against a liking for drink; whereas, after disease of the brain had broken down the power of inhibition, the lower animal liking for drink overcame the higher motives. It is now pretty generally recognised that as the “moral faculties” were the last to be evolved, they are commonly the first in brain disease to disappear. It is quite possible, too, that a certain diminution in the power of keen intellectual perception accompanies the loss of inhibition, the imagination does not so vividly “realize” the consequences of habitual drunkenness as before. Our means of testing minute degrees of psychological change are as yet far too imperfect to enable us to dogmatize on such points. If any man will take the trouble to analyse the exact intensity of his “moral sense” in different circumstances and at different times, and its inhibitory

and propulsive power over conduct, he will soon see, if he is honest, how it fluctuates. If he then tries to gauge its intensity in different people, especially in the persons where it is hyperæsthetic, he will realize that the scale of moral sensitiveness is a very graduated one, even keeping within sane limits. There are hundreds of thousands of our population who always drink to excess when they have the chance, they have no sense that it is wrong at all, or so little that it does not influence their conduct; there is no question of any paralysis of inhibition with them. They have no motives towards exercising any power of inhibition they may have. To any such person it does not seem wrong to get dead drunk once a week, and he exercises no inhibition against it, while another man's ethical sense is so hyperæsthetic that it seems dishonest to him to write a letter with his office address on it from his private house, and he will never do so. Both are sane, and both have unimpaired power of inhibition to do or not to do, according to the motives that operate on them.

Having excluded those mental diseases and brain lesions and degenerations from true dipsomania, the next thing is to separate it from simple drunkenness. We cannot say that all men who have a strong leaning for drink are dipsomaniacs; nor can we say that all men who habitually or periodically drink to excess, and so mar their prospects, destroy their health, and hasten their deaths, are dipsomaniacs. It is not the craving nor the unreasoning disregard of every motive alone that should enable us to form our conclusions. It is the non-existence of the power of control that is the test of whether the drinking is a disease. Very many persons have a craving for drink; in not a few of those this craving is of morbid strength, and is in some of them even connected with weakened or disordered brain action. Such persons frequently do indulge to excess, but they do so deliberately, and could control their actions if they would, and do control them when there is sufficient motive for it. They drink as a part of their social life, and an aid to it, or to experience the pleasure that drink gives them. Some of them cannot stop at the point they lay out for themselves after they have begun to drink. To treat of drinking from a medico-psychological point of view, and to ignore the great part wine has played in aiding social joy from the earliest human records till now, is to set aside one of the great facts of sociology. The study of medico-psychology without reference to the habits and social history of mankind would be like the study of politics without reference to human passions. Deep-rooted, ingrained, apparently innate in the social instincts of mankind, is the practice of feasting as distinguished from mere eating and drinking to sustain life. It has been followed equally by the Hottentot and the Greek. The universal desire for it, and the pleasure it gives, must certainly be regarded as proving its necessity to mankind. Feasting always implies taking more than is absolutely necessary for life, and also

that the food and drink are more tempting or more highly seasoned or stimulating than those in daily use by the partakers of them. It also implies that if food or drink, or both, of the same quality or in the same quantity, were taken daily, it would be injurious. As an essential part of their feasts, nearly all peoples—except the followers of Mahomet—have used drinks or drugs that intoxicate more or less. Once invented or discovered—and their discoverers have always been placed among the gods—these drinks seem to have always become an essential part of feasts. No great harm is proved to have been done by feasting with the use of drinks if it was only indulged in at rare intervals, and if the feasters led physiological lives in between. Nature provides that excesses do not do much harm if not often repeated. Nature also gives clear indications that the pleasures of feasting are greatly lessened if they come too often. The glutton and the dipsomaniac are landmarks to show that Nature's laws have been broken. Broken law by man in time creates conditions of brain that become hereditary. Long before actual demonstrative tissue changes occur, we have diminished resistiveness to hurtful influences, lessened staying power, and not so great an organic pleasure in living for its own sake. The fathers eat sour grapes, and the children's teeth are set on edge. Man cannot both live and break the laws of his life. But few thoughtful persons can imagine that feasting and its risks can be mended by being ended. Mankind has too keen a consciousness of the balance of advantages for this ever to happen. And intoxicating drinks being historically an essential part of feasting, how can we expect them now to be eliminated from it? If we would use intoxicants as a part of feasts only, mankind would be safe enough from their abuse, and in a few generations dipsomania would be unknown.

But what about the Red Indian, and the effect fire-water has on him? A whole tribe, a whole race, of primitive healthy barbarian men and women, with no heredity whatever towards a morbid craving for drink, become in one or two generations all dipsomaniacs together. They conform to any scientific definition of dipsomania that can be given. Their cravings are diseased, and their control is paralysed; they drink till they become extinct, individually and as a race. No motive will control them from not drinking to excess if they have the chance. The use of drink in them is never connected with the gratification of social instincts at all. It is a simple craving for experiencing the intoxicating effect of it on their brain. No doubt this is a difficult problem to explain. Its explanation seems to be best found in this a-social aspect of drinking among savages. They had not grown up by the experience of countless generations to the social uses of drink, and their higher power of control over strong cravings, or over conduct, has not been evolved. Inhibition over things relating to their wars and hunting matters they have in abundance. But the

finer ethical inhibition has not been evolved in them. So that when strong alcohol, a substance which civilisation alone could have discovered, and the subtle bad effects of which it required the inhibitory power of a fully evolved brain to withstand, was presented to them, it is no wonder that their limited control failed in such a case. They should have begun with mead and weak ale. It should never be forgotten that alcohol poisons as well as exhilarates. It affects more strongly the highest brain functions of emotion and control. The unevolved savage was suddenly brought into contact with a poison and intoxicant combined that only civilized brains could resist, and his brain at once fell a victim to it. I often think the instructive analogy between the dipsomania of the unevolved Indian and the dipsomania of "reversion" in the civilized man has not been sufficiently dwelt on.

The distinction between dipsomania and the various forms of true alcoholic insanity and alcoholic nerve degeneration is clear enough if we accept the term in the sense I have endeavoured to make out. Yet they may have a close relationship. A dipsomaniac may develop alcoholic insanity. A case of acute alcoholic insanity may get cured, and become one of dipsomania. A dipsomaniac, while he remains a pure case of that disease, has no systematized delusions, no hallucinations, no amnesia, and no motor symptoms, has seldom strong impulsive suicidal or homicidal impulses. In fact, most dipsomaniacs are harmless enough except to themselves and others through their conduct. We need not point out that every case of true alcoholic insanity has always one or more of these symptoms. This distinction is most necessary to be kept in mind. We can get no scientific idea of dipsomania so long as we do not distinguish it from true alcoholic insanity and alcoholism generally. Popularly, it is almost impossible to get them distinguished from each other, and we are too apt to assume their identity through that intellectual laziness that makes us so often accept the term "softening of the brain" as a sufficient description of general paralysis, apoplectic seizures, bulbar degeneration, cerebral atrophic conditions, or even extreme secondary dementia. This tendency is wrong, and we should resolutely resist it. Our medical nomenclature is getting complicated enough, but this is inevitable, and we should use different names to distinguish things that really differ.

The greatest difficulty in the diagnosis of dipsomania is unquestionably to distinguish it from drunkenness, where the control is not paralysed, but simply not exercised. Especially is it difficult to tell where the stage of sane, responsible, punishable drunkenness ends and that of dipsomania begins, in those cases where the latter arises out of the former. In marked cases the disease makes itself manifest to a careful clinical study of the symptoms present. Those symptoms are psychical and nervous, and are often subtle in

quality. Such a case is like many difficult mental cases,—it needs the faculty of psychological diagnosis to be put into exercise. There may be no coarse and evident elements of differential diagnosis present at all. To diagnose a case often requires that fine points of character, of conduct, of the influences of motives, of the affective nature, of business capacity, of the power to sleep and to concentrate the attention, have to be put into the balance and weighed. The whole moral history and capacity of the patient has to be laid open and inquired into. The general health, and markedly the brain health, in its sensory and motor, but especially its trophic functions, needs examination. This question always arises, too—"Is there such a difference between the man now and at some previous time when admittedly well that a condition of disease only will explain it?" The chief clinical facts that prove such disease, or tend to prove it, are the following:—

Marked remission and periodicity.

The diseased craving and paralysed control having followed, as effect follows cause, brain injury, loss of blood, mental strains, bodily disease, conditions of anæmia or exhaustion, critical periods of life, or an attack of mental disease.

A change in the whole mental, moral, and emotional character, coincident with or closely related to the drink craving.

A mental or neurotic heredity.

A marked neurotic diathesis.

A congenital weakness in the inhibitory qualities of the brain, brought out by emerging into life or having new opportunities of indulgence.

That the patient had normal control at one time, and exercised it under temptation to yield when he chose, but that the excessive use of alcohol has destroyed the brain's power of control, and has set up a morbid craving, this being usually evidenced in other ways than mere drinking.

It being accepted that dipsomania is a form of diseased craving or impulse, with paralysed—wholly or partially—inhibition, the next question is to examine its varieties and its proper treatment. I have never seen any classification of dipsomaniacs that satisfied me either as to its scientific basis or its practical value, and I am unable to devise such a classification. It is easy to schedule them into intermittent and constant, into social and solitary, into diseased and vicious. I hazard the following as being founded on more clinical, etiological, or physiological principles than those commonly in use:—

1. Developmental and retrogressive dipsomania.
2. The dipsomania of a neurotic diathesis.
3. Somatic dipsomania.
4. The dipsomania of excess.

I am very well aware that this is chiefly an etiological scheme, and has many weak points. The varieties run into each other and

overlap, and we come on some cases that will not fit into any of the four pigeon-holes.

1. Under the developmental and retrogressive form I would include the congenital cases whose higher inhibition had never been developed as a brain faculty; the cases arising at puberty and during adolescence, a numerous and an unfavourable class; those occurring at the climacteric, a not uncommon kind in both sexes, but especially in women; and the senile class, also not rare.

The general features of the congenital class of dipsomaniacs are a slight weakness of mind, inhibitorily in all directions, impulsiveness, lack of moral sense, want of balance, keen unreasoning likes and dislikes, want of power of application, want of common sense, and distorted and often remarkable social instincts. With all these lacks there may be a certain intellectual acuteness and precocity, and much cunning. I assume that the intellectual and other weaknesses do not go down to the standard of technical insanity. There may be educability if the proper methods are adopted. From early childhood an impartial study of such children will detect these deficiencies. They are usually of neurotic parentage or of a drunken family, and are in fact one variety of the class of "moral idiots" or imbeciles. The drink craving arises at any time, and usually suddenly after the first taste of alcohol, the effect of which on such brains is intensely pleasurable. Alcohol has a special affinity for all nervous tissue, but it seems to have a very special affinity for such brains, while out of it comes excitement, drunkenness, outrage, and crime. The craving I have seen developed at ten years of age, and even earlier. There are, of course, great varieties in different cases, but the following presented the main features of the disease with sufficient distinctiveness:—

A. B., aged 12, was seen by me on account of the following symptoms. His mother was a very unstable woman, and the father drank hard and came of a drunken family. The boy had been slightly peculiar, impulsive, and difficult to manage from a baby. He had been taught the ordinary branches at school, and could read and write, but was backward somewhat. Especially he had no depth of moral nature or of resistive volition. The body was large enough, but the movements were not so quick and fully co-ordinated as to be graceful. The head was badly shaped, the palate arch very high, and the eyes restless. It was difficult to fix his attention for any time on anything, and he was a good deal of an automaton mentally, but anything like idiocy or congenital imbecility had never been thought of. About a year before I saw him some whisky had been given him, it was not known exactly how, but ever since that first taste the craving for it had been present. He stuck at nothing to gratify it. Lying and stealing he would practise at any time to get a little of the coveted stimulant. He invented wonderful stories of illnesses at home, for which whisky was needed at once, messages from his mother to the family

tradesmen, etc. He was plausible in excuses and prevarications when charged with the offences of which he had been guilty. The first taste of whisky he had got seemed to have found a brain most sensitive to its evil influence, and from that time dominated it as if a glamour had been cast over the child—for child he was in reality. He was, in fact, a very mild imbecile with the special quality of whisky craving. What could I do in such a case? Nothing that I know of but send him, as I did, to a far-off manse in a solitary country place, to be under the care of a sensible, firm couple, who for the sake of an addition to their income took this precocious congenital dipsomaniac into their home, and did their best to look after him, and get him interested in the work on the glebe. Fortunately such children are uncommon.

The next is the adolescent form of dipsomania, which is common enough. I should say that more true dipsomaniacs develop the habit of excessive drinking and acquire a keen craving for it, between the ages of 18 and 25, than at any other age. It seems to be one of the developmental neuroses, standing in the same class as the cases of adolescent chorea, hysteria, insanity, epilepsy, and Friedrich's disease. Like those diseases, it seems to indicate a failure in the perfecting process of the organism. There is always a neurotic heredity in such cases; but there is not, in my experience, any psychological or physical type that would lead one to predict this likelihood of dipsomania in any young person, except I should expect him to have the characters of the neurotic diathesis; but he would have this in common with a great many who would not become dipsomaniacs at all, nor develop other neuroses. In this typical case the craving usually arises within a certain short definite time. A certain year can be looked back upon when the craving was roused beyond the power of control. The subject of it may not have become a "drunkard" that year, or for some years afterwards. At first he only gets intoxicated when the chances offer conveniently, when, in fact, he is in circumstances of more or less strong temptation. Commonly for a year or two he drinks in convivial company. Then the craving becomes more intense and more morbid, and he drinks alone, secretly and for drinking sake. Then duty is neglected, and morals deteriorate all along the line. Truth, honour, duty, honesty, self-respect, natural affection, all disappear; and the man, before he is 25, becomes the well-known wreck and wastrel that is the curse and skeleton in the closet of so many families. To give a clinical example is almost a work of supererogation. No medical man but knows many examples. Few large family groups but can furnish at least one young man who has in this way made shipwreck of life at the outset. The following case presents the main features of this form of the disease:—

B. C., the son of sensible, educated parents, but in whose mother's family there was both insanity and epilepsy. He was carefully brought up in the country, away from temptations. To

those who knew him intimately he had certain mental peculiarities. He was untruthful if telling the truth meant risk; he was vain, and had no power of self-denial, wanting in a high sense of duty, and mean. But he was educated for a profession, and developed no drinking tendencies till he went to a university town to live in lodgings during his education. Within two years, and before he was 19, he was found to be a confirmed and uncontrolled drunkard, utterly lost to affection and honour, indescribably untruthful, vicious with women, and a useless burden on society, which he remained till his death, ten years afterwards. From the time he got to like drink he showed no redeeming point, no let-up at any time, no trace of control over his craving, and no single point in his mental or moral nature that could be got hold of to apply any kind of motive to. I was satisfied, from a careful study of the case, that he was quite irresponsible and hopeless in the conditions of our modern society, and in the present state of the law. It no doubt began in vice, but within a year or so vice had become disease. It was not a long course of nerve degeneration, caused by years of drink soaking, but a sudden destruction of inhibition by a few months of drinking in the case of a brain that was innately weak in inhibitory qualities, and so unstable that it was very soon entirely upset. But supposing he had never begun drinking? or after a few months had been placed where no drink could have been obtained, and a healthy industrious life led for a couple of years? In that case I think he might have developed into full manhood, when the risk would have been much less, able to do some suitable work under good example, and not a curse to all who had to do with him. It was during the development of adolescence that the great danger lay. There was no doubt a short time during which this control was not lost and the craving not diseased; but this initial period of drinking as a vice was so short, and the amount of drinking was then so entirely inadequate to cause real brain damage, that we must look to the innate quality of the brain for the explanation of the facts. In normal brains with reasonably good health, we do not find a short period of dissipation followed by complete breakdown in the whole controlling power and moral sense, in the total destruction of what, from an evolutionary point of view, it had taken hundreds of generations to create and upbuild. Therefore such cases should be looked on from the pathological rather than from the ethical point of view. I have seen several examples of young men becoming dipsomaniacs during adolescence whose mothers had been neurotic periodic dipsomaniacs.

The dipsomania of the retrogressive periods of life, which are usually accentuated at the climacteric and senility, is not so common as at adolescence, but is far from being rare. Few practitioners but have met with cases of women who had led sober, self-controlled lives up to the menopause, and then took to alcohol to counteract the feeling of weakness and lack of energy and of en-

joyment that they experienced. The commencing failures, mental and bodily, of senility, too, are sometimes attempted to be fought off by liquor, with the result that the liquor becomes master of the situation, and useful and respected lives are terminated in disgrace and dishonour.

D. E. was a lady of good position, married, and happily circumstanced in all respects. She had led a correct life up to 46. She had always had a glass of sherry at lunch and dinner, but never had any craving for liquor till after she began to have the usual signs of the climacteric. Then she "felt low" at times, and began to take a glass of sherry before lunch, then another when out shopping in the afternoons, and at dinner would take two instead of one. At bedtime she would take some whisky and water to make her sleep, and the water grew less, till the whisky was taken neat. In a year she herself awoke to the fact that a craving for alcohol had seized her, and that her control against it was all but gone. She decided on teetotalism, but the effort was too great for her. She broke down over and over again. She gave out to her family and friends that she was "ill," and kept her room, when in reality she was drinking. She never so lost self-respect or caution that she got drunk on the streets; but she was drinking herself to death, and had no control whatever over the craving, when a relative took her a long voyage in a teetotal ship, and watched over her for a year a two longer, with the result that she lost the craving and acquired sufficient self-control never again to touch drink. She got stout, shapeless, and sober; she had passed the climacteric, and was safe. I could not discover any heredity, but she had been a "nervous," sensitive, and brilliantly intellectual woman.

As an example of senile dipsomania, take the following case:—F. G., a gentleman who had built up and conducted an extensive business till he was 70. His habits had not been in any way abnormal. He indulged freely enough in convivial drinking at times, but never had drinking bouts or solitary sprees. At 70 he got to drink more and more at dinner and at night; then he began at lunch-time, and then became a perfect sot, with no self-control or self-respect whatever, unable to do business, or to mix in society. This was coincident with atheromatous arteries, a senile heart, and a failing memory. At 73 he had alcoholic amnesia, and at 76 senile dotage, when he lost the craving for drink, and lived five years longer a sort of vegetable life.

2. The next kind of dipsomania is that of the neurotic diathesis. There are unquestionably some persons of high brain qualities, especially of keen sensibilities and poetic minds, of practical force and of conscientiousness in a high and even hyperæsthetic degree, but yet who have small staying power, are soon tired, are apt to be carried away by the very force and intensity of their emotions, and who are very sensitive to their own sensations of weariness from

any cause, some of whom are very subject to such a loss of control over their craving for stimulants that it can only be called diseased, if they have once taken to their use as "restoratives." Few of us but have known some examples of such persons. They need not have any insane heredity, or any connexion with technical insanity in any degree, or they may be of the insane diathesis. Suppose we take the poet Edgar Allan Poe as an example of the latter class. To some such persons the effect of alcoholic stimulants or opium is so intensely pleasant, and so reinvigorating at the time, that it is no wonder they are craved. They are lifted from a common state of mind into an ideal one. Their social instincts are greatly intensified by drink. To them it is a mental stimulant in a true sense. In some of them there is a periodic depression nearly allied to simple melancholia that is accompanied by a special craving for some external agent that will give enjoyment. In women of this type, the nervous accompaniments of menstruation, pregnancy, and nursing are especially apt to lead to a craving for stimulants. But it must be kept in mind, and it has certainly often been forgotten by writers on inebriety, that there are two varieties of periodicity in the drink craving quite distinct from each other: the one is when it comes on *per se*, and is a true recurrence of a subjective nervous phenomenon, a true cyclical neurosis. The other is when there are "bouts" of drinking that upset the stomach and liver, and produce a thorough satiation of the tissues with alcohol, which can no longer be taken, therefore, without producing a revulsion. When the organs and tissues become freed of those poisonous effects, and can with impunity receive more alcohol, then the man begins another "bout." This, which is more common than true periodicity, I do not call a periodicity at all. There would always be a mental desire for drink in such cases, but the body will not tolerate it for a time after a drenching. Whenever toleration is established excess begins. The following was an example of a neurotic dipsomaniac. H. I., a lady of good education with a distinctly nervous heredity, but with no insanity in her ancestry. Was a brilliant, social, rather jealous, and very attractive girl. She was tall, thin, mobile, and highly neurotic in temperament. She married soon, and the change of habits, the responsibilities, the child-bearing, and the desire to appear lively and entertaining to her husband, made her use wine at first and then spirits. When she was tired the effect of alcohol was always delicious to her. It dissipated any feeling of fatigue, raised her spirits, enabled her to appear well in company, and to do her work, as she thought. In two years after marriage she had begun to take it secretly, and she found she "needed" it, and she accordingly took more and more strong spirits until it mastered her, and she became its utter slave. She lost all power of controlling her craving, and constantly lost her truthfulness, but she was not entirely demoralized. She was always worse when menstruating

or pregnant. She made many resolves to abstain, but seldom could do so for more than three months at a time. When she once tasted spirits she could not stop. Everything was tried—voyages in teetotal ships round the world, voluntary residence in asylums, but nothing availed, and she died of some intercurrent disease after having ruined her constitution by drinking. A careful study of her brain state convinced me that she had a very neurotic constitution, that she had never been able to control herself from indulging in what she liked well, and that the effects of alcohol on her brain were intensely pleasurable, and that within two years after having begun the habit she was utterly helpless to restrain her craving for brandy, and was therefore in a condition of disease and not of vice.

I have known several cases of neurasthenia take to stimulants as an antidote to their bad feelings, and very soon lose control over the cravings thus set up.

In the neurotic dipsomaniacs it is the morbid intensity of the pleasure felt from drink that cannot be resisted. Their very strong point of keen sensibility is the rock that shipwrecks them. With their brain protoplasm alcohol has an especial affinity. They take to opium, to cocaine, to gambling, and to exciting employment to excess, all for the same reason, their over-sensitiveness. They are mostly thin and have not too good digestion. When they become teetotalers they are rabid anti-drinkers, with no charity at all to those who can drink in moderation. One does not despair of the cure of a neurotic drunkard if abstinence can be enforced in time. Many such people have very strong volitional and inhibitory powers. They are not the facile fools not worth trying to save.

3. By "Somatic dipsomania" I would distinguish those cases where traumatism, sunstroke, paralysis, brain erysipelas, brain lesions of all sorts, so weaken the self control, that men who had previously led sober lives then acquire marked cravings for liquors and cannot control those cravings. I have seen examples of every one of these lesions inducing dipsomania as one of their symptoms,—indeed, I have known several cases where falls and blows on the head and sunstroke induced it as the only mental symptom.

Under this category, also, come these cases where the craving appears after losses of blood, after severe illnesses, during conditions of anæmia and chlorosis in women after childbirth, during lactation, and during pregnancy. Usually there is not only a craving for drink, but not much tolerance of it. A small quantity excites and intoxicates or stupefies in such cases. A small amount will sometimes cause violent delirium, and the traumatic and sunstroke cases show homicidal and suicidal impulses soon passing into actual delusional or impulsive insanity. All those are very hopeless varieties except the anæmic, chlorotic, and nerve exhausted varieties. Nourish and fatten such cases, and they will often get well.

4. The "dipsomania of excess" is the most difficult form of any to deal with theoretically or practically. By it I mean that form where there is no special heredity, no neurotic diathesis, no disease, and no critical period of life, and where there has previously been a prolonged excessive use of stimulants. A bad habit has been voluntarily cultivated, and has grown in strength until it has become master. There was no natural lack of self-control, but most probably a natural love of liquor and its effects. It is only after many years that the habit has grown into a disease, and there is no special time at which the one ended and the other could be said to have begun, nor any perceptible line of demarcation between normal liking and diseased craving, nor between possible control and paralysed inhibition. The alcohol it is which in such cases itself destroys certain higher brain qualities by its excessive use. It is voluntarily and of set purpose taken, with the full knowledge of its evil consequences, or, at all events, that knowledge could be acquired by the least thought. The loss of control, and the morbid craving which result, are brought on by the deliberate act and deed of the drunkard. The craving was for many years so excessive that it could not have been controlled. Constant soaking alters the texture of the brain cortex; the nervous elements, the connective tissues, the bloodvessels, and the lymphatics all suffering in time, and we are thus often able to demonstrate a physical basis for the disease. But this is only after many years, and after the cases have become incurable.

This is the class to which some punitive treatment could in the first stages be properly applied. If one of them has a sufficient motive, he can in the early stages control his evil habit.

As to the treatment of dipsomania, the following are its principles:—

1. We need a legal control for many cases, without which nothing can be done. But it is an utter mistake to imagine that if we had the most stringent law of legislation that the strongest advocate for it could devise, that we should be able to cure all dipsomaniacs, for the reason that by the time a case is a dipsomaniac he is often *ipso facto* incurable. You cannot apply the remedy in time. How can any period of enforced abstinence cure the atrophied brain cells, and the hypertrophied membranes and neuroglia, and the degenerated vessels and lymphatics of the dipsomaniac of excess? It would, no doubt, be a great blessing to his relations and society to separate him from his fellows, but the process would have more the idea of an incurable asylum for a chronic lunatic than of a hospital for the treatment of pneumonia.

2. Total abstinence is needed in ninety-nine cases out of a hundred. In the hundredth case the conscious loss of self-respect implied in teetotalism, while others can drink, is so great, that moderation in suitable diluted liquors is better than abstinence.

3. Special asylums are needed, but I have not yet seen any

institution that comes up to my idea of a true curative hospital for dipsomania.

4. Every means that strengthens the bodily health, that restores all the functions of the brain and body to normal "tone" and working is good. Especially work and walking and life generally in the fresh air, under supervision, tend toward restoration. Dr Playfair of London reports several "cures" by massage in cases of neurotic dipsomania.

5. "The special expedients," the "cures," and the panaceas generally are only temporary measures for special symptoms or crises. How can it be reasonably imagined that the highest brain quality, that of control, can be set up permanently by a few bottles of bromide of potassium or bark? No doubt such things are useful to allay temporary intolerable cravings, and to give the stomach and brain temporary substitutes for its accustomed stimulus.

6. One of the best things we can do is to study the brain qualities, and especially the weak points of our children and our patients' children, so that by the prophylaxis of right conditions of life, by the formation of right opinion as to drink and its dangers, and by right "upbringing" generally in body and mind, the power of control may be strengthened, and cravings may be controlled before they become morbid. The most important thing by far, on the whole, in regard to dipsomania in my judgment is to prevent all such persons from acquiring a liking for drink, who, from their age, heredity, or neurotic diathesis, would be liable to have set up a morbid craving for it. It will be one of the problems of preventive mental medicine for the physician first to read the signs of the nervous and mental constitution along with the heredity, and then to say, "You shalt not touch the dangerous thing. To you it is poison. There it something in you that will take fire if you do, just as surely as gunpowder will explode if you throw a match into it." Everything that can strengthen the sense of duty and the moral faculties generally, that can rouse interests in life and excite emotional enthusiasms, may save such persons if applied in time. Religion, love, business, family responsibilities, and fear, may one and all cure a man on the verge of dipsomania.

(To be continued).

II.—THE ARRAN TRAGEDY.

By HARVEY LITTLEJOHN, M.A., M.B.

THIS case, which has so recently filled our newspapers and occupied so much public attention, has also raised some questions of great medical interest, which are worthy of discussion and of a more calm and undivided consideration than they received at the trial.

I do not intend to go into the general evidence, interesting

though it be, or into the question, "What the motive for the crime was," but will confine my remarks to certain points which were raised by the medical evidence, and discuss shortly the comparative probability of the two theories adduced as to the mode in which the injuries were produced.

But, first, let us recall shortly one or two salient facts connected with the history of the case, which are, however, of great importance in the consideration of what follows.

Rose disappeared on the 13th of July, and his body was found on the 4th of August, or twenty-two days afterwards, lying face downwards, under cover of a large boulder, with the whole of the left side of the skull battered in, the face for the most part bare of skin, and with severe injuries to the facial bones—namely, a complete separation of both upper maxillæ from their attachments to the other bones of the skull, and a detachment of both nasal bones, besides a dislocation of the lower jaw on the left side.

In regard to the face, one witness said that it was so smashed as to be unrecognisable, and that it was "just a diffused mass of battered features." Referring to the skull, Mr Gilmour stated,—"There was a large irregular cavity with pieces of bone, showing a series of fractures radiating in every direction. I counted no fewer than nine pieces of bone." Most of these pieces were found lying within the skull; and in regard to these pieces, another witness states that pieces of the skull bones were found "lying on the ground where the skull lay."

Besides the breaking in of the whole vault on the left side, there were injuries of a severe character to the base of the skull, including a fracture running obliquely from the right orbit across the base to the glenoid fossa of the left side, which seems to me of the greatest importance in connexion with the separation of the superior maxillæ.

Mr Gilmour further stated that when he examined the body first of all, the atlas vertebra "was lying alone," and the skull separated from the spinal column. There was no fracture of any vertebra. The two upper ribs on the left side were "dislocated" or separated from their attachments to the corresponding vertebræ; and, lastly, there was a fracture of the acromion process of the left scapula. The face, left side of head, neck, and shoulder were in an advanced stage of decomposition, and covered with maggots; and, as the report states, "we found that the whole of the soft tissues of the neck were gone, exposing the cervical vertebræ."

As to the mode of production of the above injuries, the medical witnesses for the defence and prosecution were at wide variance. On the one hand, the defence held that all the injuries were most satisfactorily accounted for by a fall from a height of 19 to 32 feet on a rough rocky ground; while the prosecution held that such a fall could not account for *all* the injuries, and that a succession of blows with a blunt instrument was the more likely cause; or, to put it

in another way, the defence held that *one* fall was sufficient, the prosecution that a succession of falls or a succession of blows would be required. Both sides admitted that either view was within the bounds of possibility, but that their own was the most probable.

Dr Watson, having regard to the whole facts, thought it "extremely probable" that the injuries were caused by such a fall—that is, one from a height of 19 to 32 feet on ground such as has been described. It is this "extreme probability" that I should like to draw attention to, partly because the combination of injuries, as spoken to by the defence, and their severity are, for such a height, I believe, without precedent so far as recorded cases are concerned; and partly because such a deservedly high surgical authority as Dr Watson is, has lent his countenance and support to a theory which seems to me in the highest degree improbable, if not impossible.

What are the injuries which Dr Watson accepts as with "extreme probability" caused by a single fall not more than 32 feet in height? (At the trial the 19 feet fall appeared to be the one put forward by the defence as that which more probably caused Rose's death.)

Let me simply enumerate them again:—Total destruction of the left side of the skull, involving the temporal and parietal bones on that side and part of the occipital and frontal bones; fracture of the right parietal; displacement of both superior maxillæ, so that they "moved freely about;" extensive fracture of the base of the skull; fracture of the left malar bone from both its attachments; fracture of the zygoma; complete separation of both nasal bones; dislocation of the lower jaw on the left side; dislocation of the first vertebra; dislocation of the two upper ribs on the left side from the spine; and, lastly, compound fracture of the acromion process of the left scapula.

First of all, let us consider the fractures of the skull; and in regard to them I do not think one would be overstepping the mark if they were described, even for a sheer fall of 60 feet, as of a peculiarly severe character, for you have a general smashing in of nearly the whole of the bones which go to form the side and vertex of the skull; and not only this, but you have them broken up into at least nine separate pieces. It may be here remarked, as a fact of some importance, that all these pieces were found under the boulder, either in the skull or on the ground in its immediate neighbourhood; so that, if the body had been carried for any distance after the head was broken in the way suggested, it is more than probable that some of these pieces would have dropped to the ground and been lost. But it may be asked, Were the pieces all there? Certainly it would have been more satisfactory if the medical examiners had collected and fitted the pieces together, so as to make out whether any portion was wanting, and had stated this in their report.

But in addition to the above fractures of the vertex there was

extensive and "commensurate" fracture of the base, which, looking to the character of those of the vertex, involving, as they did, a complete and general giving way of the vault, argues in itself a very large amount of force. It may with good reason, too, be doubted whether it was a truly "commensurate" fracture directly connected with those of the vertex.

Undoubtedly, a strong point in favour of a multiple origin of the injuries was the detachment in one piece of the two upper maxillæ. This is an injury of extreme rarity, and, so far as I have been able to consult authorities, no similar case has been recorded.

Unfortunately, the question was put to Dr Watson as to whether it was not a very strong bone, and he was enabled to answer, "No, it is as thin as paper." What should have been asked was whether it was not a bone strong from its position and attachments, and unlikely to be separated by indirect violence, when he must surely have answered in the affirmative. Gross, in his *Surgery*, says, "A fracture of the upper jaw implies the application of direct mechanical injury in a concentrated and severe form;" but further on also states that in a few instances it has been caused by *contrecoup*, the head and lower jaw being wedged in between two hard resisting bodies. This latter circumstance, although a very interesting fact, does not apply in the present case, as it would imply that the point of contact of the skull on falling was the forehead instead of the vertex. And further, we have not to deal with a case of simple fracture, but of separation of both bones from their attachments, so that they were rendered "quite loose." Thus, then, so far as the head is concerned, it must be acknowledged that the injuries were very extensive, and if produced by a fall, the possibility of which cannot be denied, then the force acting must also have been of a very severe character.

But the whole force of the fall of 19 or 32 feet was by no means all expended on the head, for we have a dislocation of the atlas, fracture of the acromion process, and dislocation of the two upper ribs on the left side,—injuries (accepted by the defence) all requiring a very considerable amount of force to produce them; and in the case of that to the ribs, not only have we one of extreme rarity, but also one requiring great *localized* force. I have only been able to find one case recorded of pure dislocation of the first rib, and only about half a dozen of dislocation of ribs from vertebræ, and these generally associated with fracture either of the rib or vertebra.

Thus, then, each of these injuries for their production must have detracted very considerably from the main force; and the question is, not as it is too apt to be put, whether a fall of 19 or 32 feet was able to produce the injuries to the head, but whether such a fall was able to produce them, and also the injuries to the shoulder, spine, and ribs of the character described, each and all admittedly requiring great force, and thus breaking up, as it were, the primary into four secondary and much less forces.

Is not, then, the probability, to say the least of it, rather against the theory of one single fall having produced all the injuries, and can these not be more reasonably accounted for by a succession of forces, acting either in the shape of falls or blows, or a combination of the two?

In support of his theory Dr Watson very rightly mentioned how difficult it is to produce depressed and comminuted fractures of the skull in a dead body; this must be admitted, but he went too far when he said that it requires blows from a sledge hammer to produce them. Skulls vary very much both in thickness and fragility, and any one who has experimented on the subject is aware that the same force which may make no impression on one will cause tremendous splintering of another. The bone of a dead body, as is well known, is tougher than in the living subject, thus in some degree accounting for the difficulty of making fractures post-mortem. Casper says, "If we endeavour to fracture the skull of a dead adult, we shall find that an amount of force which, if applied during life, would indubitably have produced fissures, if not fracture or complete smashing of the skull, leaves the dead skull quite uninjured."

It is the first driving in of bone which is difficult—the first break in the arch; after that a comparatively small force will continue and complete the process of destruction. Now, is there any so great improbability in a man of ordinary strength and activity (and Laurie, though small in stature, was strongly built), having first stunned his victim by means of a blow from a stone or stick, afterwards producing such a battering in of the skull with a stone, say, of the size and weight of an ordinary curling-stone held in both hands and brought forcibly down on a skull resting on hard ground? By means of such a stone the injury to the shoulder could quite well have been caused, though scarcely those to the spine and ribs.

But the question may be asked, Were these latter bones injured at all? They have been alluded to above as having been injured only because they were so accepted by the defence, including the medical witnesses, who seemed rather to prefer the theory that these bones had suffered dislocation than that they had been detached in the course of decomposition.

Surely it would have been better for the defence to have adopted what the medical witnesses for the prosecution were willing to admit and practically acknowledged—namely, that decomposition had destroyed the ligaments along with the other soft parts, and that there was no traumatic dislocation either of the ribs, vertebræ, or lower jaw. Thus the defence would only have had to account for the injuries to the skull and shoulder, which would have rendered the theory of a single fall much more tenable and possible.

One of the witnesses for the defence said he thought decomposition would not account for the detachment of the atlas alone.

Quite so; but why were the medical witnesses for the prosecution never examined as to the state of the other vertebræ and their ligaments? They state in their report that decomposition was far advanced, and "the cervical vertebræ bare." Surely, if the defence attached importance to proving that there was no dislocation of the atlas, they ought to have ascertained from the medical witnesses for the prosecution, when in the witness-box, the exact condition of the remaining cervical vertebræ as regards their attachments.

But, again, in this case we have not only to deal with decomposition plain and simple, but with decomposition in the height of summer, and of the moist or most rapidly destroying type, assisted by large quantities of maggots, and possibly mountain rats, whose holes abounded in the neighbourhood of the boulder where the body was concealed, and which are mentioned by Drs Fullerton and Gilmour as having probably attacked other portions of the body.

Maggots do not tend, like worms, to spread over the surface, merely destroying the more superficial tissues; they remain in one spot till they have consumed all that can be eaten, and thus they helped to destroy the brain, organs of the chest, and soft parts of the face and neck down to the very bone, taking ligaments and tendons along with skin and muscle. At the exhumation, seven weeks afterwards, the cervical vertebræ were found to be all loose, and cleaned like bones for anatomical demonstration; even the intervertebral discs had completely disappeared, and not a trace of larynx or trachea was to be seen. Under these circumstances, there is nothing so impossible in the atlas and two left upper ribs having been found detached at the first examination.

Another point of interest which arose at the trial was the apparent absence of all traces of blood-stains either at or near the boulder or on the person of Laurie. Certainly they were absent three weeks after the deed was done; but had the body been found the day following the death, there can be no doubt that traces of the crime would have been only too evident. A heavy shower of rain would soon destroy all blood marks on stones or on the ground at the site of the supposed fall or assault; and as for the blood presumably effused in the skull and about the neck, that would decompose and disappear even before the soft parts themselves.

As regards the victim's clothes, they ought all to have been carefully examined by an expert, and any stains observed subjected to strict tests before it was alleged that they were free from all blood marks.

In the prisoner's favour it was asked whether one would not have expected marks of blood on Laurie had he attempted to carry Rose's body from the place where he may have fallen to the boulder for concealment? Undoubtedly we should; but what evidence is there that no such marks existed? Laurie might have taken off his coat and laid it aside, resuming it when all was over, and he thought he had successfully concealed the body. His arms, shirt,

and waistcoat may have been covered with blood for all any one knows to the contrary, and he may quite well have appeared next morning at the steamer without any evident stains, and thus escaped detection till he was able either to destroy the soiled garments or wash out the evidence of blood.

III.—VESICAL CALCULUS; SUPRA-PUBIC CYSTOTOMY; RECOVERY.

By W. J. NAISMITH, M.D., F.R.C.S.E. (Exam.), Surgeon to the Ayr County Hospital.

WILLIE L., aged 6 years, was admitted to Lady Walker Ward, August 8th, 1889, under suspicion of stone,—a suspicion which was converted into a certainty on the following day, by the discovery, with a sound, of a calculus too large for crushing. There was the usual and characteristic history. Three years ago, the boy suffered his first attack of pain and difficulty in micturition, which lasted for three days. This passed completely off till a year afterwards, when he was again seized, and suffered acutely for three or four days, after which his attacks became gradually more frequent, and there was progressive deterioration of his general health. His condition on admission was pitiable. There was great pallor, with dark rings round the eyes, an anxious, suffering expression, and much general emaciation. There was, of course, difficulty of micturition, and the pain in the vesical region became at times excruciating, his screams being audible a long way from his ward. At such times he was soothed with opiates, but very often the sister experienced much difficulty in preventing the patient from throwing himself out of bed; pulse quick and irritable; morning temp. 100°, evening, 102°; taking nourishment badly; complained of continuous thirst.

Aug. 14th.—Supra-pubic cystotomy performed. The urine being drawn off, and the stone again made sure of,—a cautionary inculcation fragrant with heroic memories of the great theatre of the Old Royal Infirmary,—the bladder was distended by the injection of six ounces of warmed weak boracic lotion, no means being adopted for rectal distension.

An incision was made about two, or two and a half inches long, in the middle line, and close above the pubes, the abdominal muscles separated, and the bladder prominently exposed, the peritoneum not being visible. The organ was steadied by two lengths of silk suture, passed by means of a curved needle through its muscular wall; these were held apart by an assistant, and between them the bladder was cut into by an incision one inch in length.

While a pair of lithotomy forceps was introduced with the right

hand, the left forefinger, passed into the rectum, served to tilt up the stone from the vesical fundus, and adjusting it fairly between the blades, to aid in completing its extraction. The parietal ligatures were then removed, and a large-sized drainage tube inserted. According to Sir Henry Thompson's earlier method, the bladder was not sutured. The abdominal wound was closed on both sides of the drainage opening with deep sutures of stout carbolized gut, iodoform powder and salicylic wool being applied as a dressing. Evening temp. $101^{\circ}8$; free from all urgent pain; urine passed by drainage tube.

15th.—Morning temp. 99° , evening, 103° ; comfortable, and taking nourishment well. 16th.—Temp. gained normality, and did not rise again. The patient improved and gained flesh rapidly. Micturition *per viam naturalem* was effected on the tenth day, and the external wound completely healed on the twenty-third day after the operation. Recommended for admission to the Hon. Mrs Vernon's Convalescent Home at Dundonald.

The calculus was oval, phosphatic, and weighed 24·8 grammes.

IV.—THE ELECTRIC CYSTOSCOPE.

By DAVID WALLACE, F.R.C.S. Ed.

(Read before the Edinburgh Medico-Chirurgical Society, 4th December 1889.)

MR PRESIDENT AND GENTLEMEN,—The endoscope—or, better, the cystoscope—is no new idea, but latterly the instrument has been so perfected as to bring it within the range of practical surgery; and, as I hope to show to-night, it is now of the highest value in aiding the accurate diagnosis of obscure genito-urinary affections.

Shortly, the history and evolution of the instrument have been as follows:—In 1805 Dr Bozzini of Frankfurt advanced the idea that the bladder might be examined visually, and in that year he exhibited an apparatus devised by himself, which, in his opinion, fulfilled the object in view. His instrument was, however, found to be quite inadequate, because of insufficient illuminative power. In 1854 Désormeau introduced a cystoscope, which was further elaborated in 1865 by Dr Cruise of Dublin. Until 1877 the cystoscope may be considered to have been in its *first stage*, inasmuch as the light supply was from without, *i.e.*, external to the bladder,—being projected along a tube by mirrors set at convenient angles. In 1877 the *second stage*, which may be called the electric, was reached, the light supply having since then been internal, *i.e.*, within the bladder. Dr Max Nitze of Berlin in that year introduced the platinum loop cystoscope,—an apparatus made at his suggestion by a Dresden instrument maker. His apparatus had various objections, and was soon condemned on account of its clumsiness and the very defective light it supplied. Dr Nitze,

therefore, along with Leiter, the well-known Vienna instrument maker, had the instrument simplified and improved. In 1879 Sir Henry Thompson said of the Nitze-Leiter apparatus, "That it was difficult to use successfully, although far more efficient than its predecessors. It was a large and unwieldy apparatus, so large that it could not be carried from place to place in a carriage, a circumstance which considerably diminished its sphere of usefulness."

In March 1887, for the first time, the incandescent lamp cystoscope was introduced,—two making their appearance almost at the same time, Dr Nitze's and Leiter's. These instruments are practically the same in their principle, but the latter—that of Leiter—has a great advantage over Nitze's in that it can be repaired very quickly, even by unskilled persons.

Professor Chiene in the beginning of 1888 procured a Leiter incandescent lamp cystoscope from Vienna, and it is through his kindness that I have had opportunities of using the apparatus which I propose to describe and show to-night.

There are two forms of instrument—an anterior and a posterior. Each is shaped like a sound, and consists of three parts—the beak, the shaft, and the eyepiece. Running from the eyepiece to the beak there are two hollow tubes, an inner and an outer. The former serves to connect the electrodes of a battery—the source of electro-motive force—with the lamp, the source of light. The *beak* is a hollow cap which has a window of rock crystal, and contains a small Swan incandescent (Mignon) lamp, from which the light for illumination is emitted. In the anterior instrument at the concavity, where the shaft and beak join, there is a prism which refracts the rays of light from the object looked at on to the end of a telescope which passes from the eyepiece of the instrument down to the junction of the shaft and beak. In the posterior instrument no such prism is necessary, but merely a plate of glass, as the object to be observed is in a line with the telescope and the observer's eye.

The ocular end has screws to connect the electrodes of the battery with the instrument, a kick-over to connect and break the circuit, and, on its rim opposite the concavity of the instrument, a small knob which indicates the position of the window in the cap, and thus enables the observer to know what part of the bladder is under examination.

The instrument has been variously modified in its details, but the original principle remains unchanged. Some of the modifications are improvements, and there are three which I think especially worthy of mention:—1st, The increased length of the instrument, which is of value for use in patients who have enlarged prostates. In such patients the urethra from this cause may be much elongated, and the original instrument is then too short. The increase in length of the cystoscope entails, however, the disadvantage that the field seen is smaller. 2nd, The addition

made by Berkeley Hill of connecting an irrigator to the instrument without greatly increasing its calibre. This is of much value when bleeding is profuse—for in such cases the fluid in the bladder may become discoloured so rapidly that examination is rendered difficult, if not impossible. By the modification of Berkeley Hill the fluid can be constantly changed and the difficulty alluded to overcome. 3rd, The perforation of the cap as suggested by Mr Hurry Fenwick.

Whitehead has suggested the use of a much larger instrument,—the instrument to be passed through a perineal wound. This, no doubt, gives a larger field, but entails an operation, the avoidance of which constitutes one of the chief uses of the cystoscope. In the female, where the urethra can be easily and widely dilated, Dr Whitehead's modification would certainly be advantageous.¹

Various batteries have been used to supply the electro-motive force for illumination—"plunge batteries" being especially convenient. That of Voltolini is excellent in itself, and has the advantage of being supplied with a convenient form of rheostat fitting into the box. The rheostat is an indispensable adjunct to any battery used for cystoscopic purposes, as it keeps the light absolutely steady; and, further, the lamps used with the apparatus vary very greatly in their resistance, so that without the rheostat a current suitable for one lamp might readily vaporise the carbon of another, and thus completely destroy it.

To use the instrument we require to prepare the patient in the same way as for the passage of a bougie or sound. He is placed in bed in the recumbent posture, and the bladder is then filled with 6 to 10 ounces of a clear fluid. If there be any hæmaturia or other cause of discoloration, the bladder requires to be washed out until the fluid injected into it comes away quite clear. This must be done very gently to avoid reinducing hæmorrhage, which would readily arise from papillomatous growths, one of the conditions in which cystoscopic examination is of special value. The bladder having been filled with a clear fluid, the patient is brought down to the end of the bed or table with, preferably, his legs hanging over the end. The cystoscope, having been previously tested to ascertain that it is in good working order, is oiled and introduced into the bladder before the electric circuit is connected. When the instrument is fairly in the bladder, you apply your eye to the ocular end, connect the circuit, and with gentle movements examine methodically the whole bladder wall. During the examination it is necessary to avoid pressing the cap of the instrument against the bladder wall, as if it touch the wall the heat

¹ In my opinion the best instrument at present for ordinary use is Leiter's, with two modifications:—(1) The perforated cap of Hurry Fenwick, and (2) the shaft an inch longer than in the original, as suggested by Sir Henry Thompson. The "kick-over" of the original instrument is, I think, a more convenient arrangement for closing and opening the circuit than the screw of Berkeley Hill's cystoscope.

generated by the lamp is not radiated with sufficient rapidity, and the tip of the instrument becomes too hot. This danger is avoided by the use of Hurry Fenwick's perforated cap, which permits water to flow around the lamp inside the beak, and thus prevents any excessive rise in temperature.

The upper three-fourths of the bladder may be examined with the anterior cystoscope, the lower fourth with the posterior. I prefer to introduce the posterior first, as the more important bladder affections are found on the inferior third, and at this part we have the ureteral openings, which should, if possible, be always examined.

When the examination is completed, break the circuit and withdraw the instrument. If not surrounded by water, in a few seconds it becomes very hot; it is therefore imperative, both when introducing and withdrawing the instrument, to shut off the electrical current.

The use of an anæsthetic is not always necessary, but it is certain that examination with the cystoscope requires considerable time. If, therefore, the patient be nervous or the bladder irritable, it is essential for thorough examination that he should be either locally or generally anæsthetized. Hurry Fenwick for local anæsthesia used ʒj. of a 20 per cent. solution of cocaine, injecting this quantity along with the ordinary solution used to fill the bladder. In a footnote to his book he states that he has used the drug in this way in very many patients without any bad results.¹

I have now had opportunities, through the kindness of various medical gentlemen, to examine fifteen cases of more or less obscure urinary affections. In all I have made twenty-three separate cystoscopic examinations. I do not intend to take up the time of the Society by giving a detailed account of all these cases, but I desire to classify them under three heads, and to give a short account of one or two cases, typical of the headings under which I place them. These cases may be considered as follows:—

1. Those which from *positive vesical evidence* permitted a positive diagnosis.

2. Those in which *negative vesical evidence* gave a positive diagnosis of renal disease; and

3. Those in which the diagnosis was not furthered by the examination.

Under the *first* head, *positive vesical evidence*, I am able to group *eight cases*: two of tumour, two of cystitis, two of stone, one tubercular ulcer, and one a clot on the floor of the bladder (which probably obscured the cause of the hæmaturia).

Under the *second* head, *negative vesical evidence*, *five cases*. In all of these the diagnosis lay between hæmaturia vesical in origin and renal hæmaturia. In three the bladder was apparently quite healthy, as seen by the cystoscope, while in the other two cases one

¹ *The Electric Illumination of the Bladder and Urethra*. 2nd edition, 1889. Hurry Fenwick, F.R.C.S.

showed a marked rugosity of the bladder, such as would be expected in a patient who had for a long time experienced difficulty in micturition from a greatly enlarged prostate, while the other showed a unilateral limited area of rugosity around the right ureter. The latter case is interesting, as Mr Fenwick figures in his book a bladder which showed almost precisely the same condition.¹

Under the *third head* I can place two cases, in which cystoscopic examination did nothing to throw light on the diagnosis. The former of these I proposed to describe in some detail, but the other was only seen very unsatisfactorily, as during the examination, which was conducted under chloroform, the patient had a rigor, and it was deemed inadvisable to proceed further with the examination.

CASE I.—J. C., male, æt. 63, under the care of Prof. Chiene. Gave history of *intermittent hæmaturia* for several months before admission to hospital. On admission complained of pain at the point of the penis, pain above pubis and in small of back at left side. Blood in the urine, and frequency of micturition. The pain at point of penis was not constant, but came on just before micturition, and continued for some time after. Sometimes the urine was quite clear, but the blood after irregular intervals, and independently of exertion, appeared, and clots were occasionally passed. Rectal examination revealed nothing. Microscopically the urine contained pus and blood cells and triple phosphates, but no tumour cells were at any time seen. On sounding, Prof. Chiene detected a roughness on left inferior part of bladder—provisional diagnosis, a tumour.

Cystoscopic Examination.—View rather blurred, but an irregular eminence extending over an area equal to a crown piece was seen on the left inferior part of the bladder. It was not villous on the surface, and differed wholly from the rest of the bladder wall.

Diagnosis.—A sessile lobulated tumour, not villous, situate on the left infero-posterior part of the bladder wall.

Operation.—On 28th October 1889 Prof. Chiene performed lateral perineal cystotomy, but was unable to remove the tumour, which was hard to touch, lobulated, and sessile. In size very similar to idea got by cystoscopic examination.

This patient was examined cystoscopically twice without any anæsthetic, and he stated that he felt no discomfort either during or after the examination.

CASE II.—T. M., male, æt. 17, under Prof. Annandale's care. Complained of pain at point of penis especially, but also along whole urethra during micturition, frequency of micturition, and dark discoloration of urine (blood). Illness began seven months before admission to hospital, when he felt for the first time pain at the point of penis during micturition. This pain gradually increased, and about four months before admission he observed

¹ Fenwick, *op. cit.*

clots of blood in his water, passed chiefly at the end of the act of micturition.

Dr Cotterill sounded this patient and detected a roughness on left inferior part of bladder, but was not satisfied that this was due to a tumour. He kindly permitted me to examine the case cystoscopically, which I did on three occasions, when I was able to recognise a rough, irregular, reddish-coloured, sessile tumour on the left infero-posterior part of the bladder. Small bloodvessels could be distinguished on its surface, and also one or two small clots lying on it. The bladder otherwise was quite normal in appearance. A satisfactory view of the whole bladder was got at each examination, and the tumour growth was seen by Drs Cotterill and Reid.

Diagnosis.—A sessile papilloma in area equal to a crown piece.

This patient suffered no discomfort during or after the examination, which was conducted without any anæsthetic.

On the 26th September Prof. Annandale performed perineal cystotomy. He found the tumour as described on cystoscopic examination, and scraped it away.

CASE III.—H. O., æt. 25, male: under Dr P. H. Maclaren's care; a soldier, served in Egypt. At Christmas 1888 he, for the first time, felt a sharp shooting pain in left side. Pain passed down into groin and left testicle, and was also felt at point of penis. A week after the pain appeared he noticed for the first time blood in the urine, but passed no clots. In September (two months ago) he passed a small stone per urethram. The sharp shooting pain left him after this, but a "nasty gnawing pain" remained in the left loin. He had hæmaturia at intervals during the six weeks immediately preceding admission. Microscopically the urine showed blood cells and a few oxalic acid crystals. Sounding gave negative results.

Cystoscopic Examination.—The bladder appeared to be quite healthy. No cystitis; no rugosity; no calculus seen or felt; ureters seen as narrow vertical slits.

On 4th November Dr Maclaren cut down on the left kidney, but failed to discover any stone either in the pelvis or substance of that organ.

Since the operation the patient has been quite free from any symptoms; no pain, no bleeding. He states that he is better than he has been for weeks previously.

CASE IV.—A. S., male, æt. 36, under care of Professor Fraser. Complained of pain in the loin and left side, and dark colour of urine (blood).

History.—In the beginning of September 1889 patient noticed that his water was darker in colour than normal, and at the same time began to feel pain in the lower part of his back and left side.

He had no pain in the penis before, during, or after micturition.

The blood in the urine was continuously present, but he did not pass any clots of blood. The urine contained blood cells and oxalic acid crystals; no tube casts. The bladder was sounded by Dr James Ritchie, who felt a roughness on the left inferior aspect of the bladder.

Cystoscopic examination revealed a rugose, vascular surface around left ureter. Injected bloodvessels were seen quite distinctly on the surface of rugosities. The bladder wall otherwise seemed quite healthy. In this case there seemed nothing vesical sufficient to account for the hæmaturia. The after-history of this case seemed to show that hæmaturia was renal.

CASE V.—Mr D., male, æt. 40. Four years ago suffered from chronic cystitis, for which perineal cystotomy was performed. This relieved the pain, but frequency of micturition continued, the patient requiring to make water night and day every half hour, passing about 1 oz. of urine at a time. No enlargement of prostate; no pain on pressure over kidneys. On microscopical examination of the urine, pus and amorphous phosphates.

On sounding nothing could be felt, and the bladder seemed fairly capacious. Washing out had been used for long periods. No residual urine.

In September 1889, the patient having been anæsthetized, 6 ozs. of fluid were injected into the bladder, and a cystoscopic examination made. Shreds of mucus were floating in fluid, and some were seen adherent to bladder wall, but nothing otherwise abnormal was detected.

It may be said that of the five cases I have quoted only two had vesical disease of a definite character, and that in each of these the abnormal swelling was detected by the sound, and cystoscopic examination was therefore unnecessary; but I think that even though a definite diagnosis of tumour had been previously made, yet the cystoscopic examination was valuable—1st, as it verified the diagnosis; and, 2nd, gave a more exact idea of the nature of the tumours. But even if in these cases cystoscopic examination might have been done without, I think the following remarks by Dr Max Nitze show that it cannot be viewed as valueless in the diagnosis of all tumours of the bladder. In the *Lancet* for May 1889 he writes:—

“Finally, on comparing cystoscopic examination with other methods, it must be noted that the examination of the urine, in most cases carefully made, had only in two cases shown the presence of villous tissue. Rectal palpations, when made, had always given a negative result. Further, the examination by the sound had been made in nine cases before cystoscopic examination, and in none of these cases had the sound revealed the presence of a tumour, which in two had attained the size of a small apple, although the examination was made by most experienced surgeons and specialists.”

Then, again, Mr Hurry Fenwick,¹ who has examined very many cases cystoscopically, gives numerous examples of obscure hæmaturia, in which he was able to demonstrate satisfactorily either that the disease was vesical in origin, or that the bleeding was undoubtedly renal in its source.

In conclusion, therefore, I think we are justified in the belief that the cystoscope will prove a most valuable aid in diagnosis. Where a tumour or other vesical affection has been discovered by sounding or other examination of the patient, the cystoscope is still of value in enabling the surgeon more exactly to gauge the possibility of its removal; and in cases where the diagnosis is doubtful it may prevent diagnostic incisions, which are certainly much more dangerous to the patient than cystoscopic examination. But even if some may consider the ordinary means of examination efficient for diagnostic and prognostic purposes in the majority of obscure urinary cases, they may admit, with Sir Henry Thompson, that "although we should not give up in any respect the simple means of prosecuting diagnostic research hitherto employed, by all means keep the cystoscope in reserve for certain exceptional cases where other usual methods have been tried and have proved unsuccessful."

That the instrument may be used with safety I think has been fully proved. In none of the cases which I have examined has the patient suffered from any bad after-effects; indeed, one expressed himself to be considerably better—a belief which was probably enough correct, as the washing of the bladder incident to the examination had been very thorough.

V.—AN INQUIRY INTO THE REGENERATION, AFTER SUBPERIOSTEAL RESECTION, OF A PORTION OF THE SHAFT OF A LONG BONE.

By ERNEST F. NEVE, M.D., F.R.C.S.E., Surgeon to the Kashmir Mission Hospital.

THE growth and regeneration of bone has always been a subject of interest to physiologists and surgeons. From a physiological standpoint the interest lies in the determination of the parts played respectively by the epiphyseal cartilage, the periosteum, the bone itself, and its medullary tissue. Viewed from the surgical side, the practical question of bone repair claims attention.

Bone repair is important after death of a portion or the whole from disease or injury. The subject has acquired additional interest from successful attempts at bone grafting during the past ten years.

Since the end of last century the subject of bone growth and repair has been a battlefield for British and Continental surgeons

¹ Fenwick, *op. cit.*

and physiologists. Now there is an armistice. There were three rival camps. Firstly, there were those who held with Richeraud,¹ that after loss of substance repair took place from the bone which remained. Secondly, some believed that the old bone before being cast off formed the new bone. This view was supported by the observations of Macdonald (1799) and Russell.² Thirdly, others held that the periosteum was the source of new bone. The originator of this last view was Duhamel,³ who was struck by the analogy between the superficial layer of newest bone and the "cambium" layer of young wood. An English surgeon, Belchier, had observed that some fowls kept by a dyer had coloured bones.⁴ Duhamel, by the application of this fact, demonstrated the layers in bone by the pigment deposited after feeding birds at intervals with madder.⁵ Then he surrounded the bone of a young pigeon with a silver band, and found it subsequently in the medullary cavity. Hunter repeated this experiment in 1780. In 1775 Troja⁶ showed that destruction of the marrow of a bone caused death of the shaft with formation of a new shell. This was confirmed by numerous workers, including subsequently (1812) Dupuytren.⁷

On the other hand, there was a strong "anti-periosteal" party. Bichat⁸ had declared against. Haller⁹ had thrown the whole weight of his authority into the scale against Duhamel; and subsequently he was supported by the illustrious Scarpa, who in 1799 published a treatise¹⁰ denying that bone could be produced by periosteum. This view was subsequently embraced by Seveillé; and in the *Dictionary of Medicine*, published in 1840, M. Ollivier does not recognise the existence of bone-forming power in the periosteum.

The subject had, however, continued to be investigated. Heine of Wurzburg (1834) was an advocate of periosteal bone formation.¹¹ Then in 1837 Syme read his classical monograph before the Royal Society of Edinburgh,¹² describing experiments in bone resection with and without removal of the periosteum, the insertion of a silver plate between bone and periosteum, and other procedures, the final results of which are familiar. Syme's conclusions were confirmed by Rigal and Vignal.¹³ Knowledge on the subject was advanced by Albrecht Wagner (1849) and the painstaking work of

¹ *Principles of Surgery*, Syme, 1868, pp. 204, 205.

² *Ibid.*

³ *Dict. Encyclop. de Sc. Méd.*, vol. xxiii., 2 series, pp. 134 to 137. See also *Mémoires de l'Académie des Sc.*, 1739-1743.

⁴ *Dict. Encyclop. de Sc. Méd.*, vol. xxiii., 2 series, pp. 134 to 137.

⁵ *Ibid.*

⁶ *Ibid.* See also *De Novorum Ossium Regeneratione*. Paris, 1775.

⁷ *Dict. Encyclop. de Sc. Méd.*, vol. xxiii., 2 series, pp. 134 to 137.

⁸ *Ibid.*

⁹ *Principles of Surgery*, Syme, 1868, pp. 204, 205.

¹⁰ *De Penitiori Ossium Structura*.

¹¹ *Dict. Encyclop. de Sc. Méd.*, vol. xxiii., 2 series, pp. 134 to 137.

¹² *Trans. Roy. Soc. Edin.*, xiv., 1837.

¹³ *Diseases of Bones and Joints*, Macnamara, 1887, p. 15.

Flourens (1838-1859).¹ Ollier of Lyons has ever since been investigating the question in a masterly manner, and it is to him that we owe much of our most recent knowledge. An interesting inquiry has been conducted by M. Retterer² through the avenue of embryology. He confirms the view of the osteogenetic power of the periosteum.

Recently, however, it has been stated by Conner,³ ostensibly on the authority of Macewen, that "the osteogenetic factor in the development and repair of bone is not the periosteum, but the bone itself. The quotation, however, which he appends from Macewen⁴ appears simply to claim that bone production and regeneration *can* occur apart from the periosteum, which is quite a different thing. The practical bearing of this is found in bone-grafting, in reference to which Macewen says,⁵ "the preservation of the periosteum is not essential to the success of the graft." Apparently this is due to the fact that, even when temporarily separated from a vascular supply, the osteoblasts of the Haversian canals can recover themselves. But Macewen himself points out⁶ that it is important to preserve the periosteum, "owing to the fact that in young bone it protects the underlying osteoblasts."

It is not often that we have an opportunity of studying the process of bone regeneration in the human subject. The following case, which is, I believe, unique, throws some light on the subject⁷ :—

M., æt. 15, male, admitted 30th November 1887. Disease of tibia, with cario-necrosis of upper end. 17th December.—Four inches of upper end resected. The lower portion of this showed a deposit of new bone on the surface a line in thickness, and bright pink, contrasting with the ivory tint of the surface to which it is inseparably applied. 12th January.—Suppuration of knee-joint has occurred. Amputation performed through femoral condyles. The joint affection was found to have resulted from an epiphyseal abscess of the fibular head, with ulceration of the articular cartilage. Patient made slow recovery, leaving hospital finally on 13th April 1888.

The portion of the tibia which had been the seat of the previous resection presented the following appearances (see Fig. 1):—

1. Macroscopic.—Longitudinal section, antero-posterior from joint through resection wound. Joint surface and epiphysis healthy. Upper margin of resection wound corresponds exactly to epiphyseal

¹ *Dict. Encyclop. de Sc. Méd.*, vol. xxiii., 2 series, pp. 134 to 137.

² *Ibid.*

³ *Ann. Univ. Med. Sc.*, Sajous, 1888, vol. ii. p. 288.

⁴ *Annals of Surgery*, 1887.

⁵ *Dict. Pract. Surgery*, Heath, 1886, vol. i. p. 618.

⁶ *Ibid.*

⁷ For fuller account see Gunning "Lister" Prize Essay, 1888 (MSS.), Edin. Univ. Library. Also, for clinical history, see "Conservative Surgery of Long Bones," *Indian Med. Journ.*, 1888-9.

line (Fig. 1, *c*). In front and behind there is a peninsula of new bone (*e, f*) extending down to the level of the upper corner of

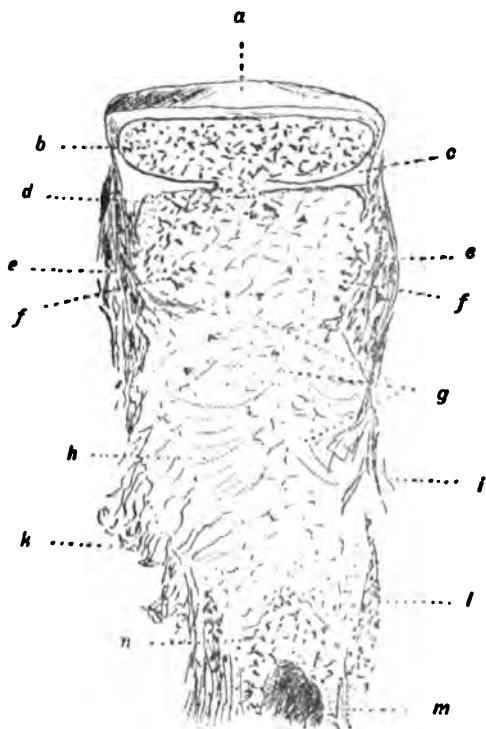


FIG. 1.—(Semi-diagrammatic.) Upper Third of Tibia twenty-six days after Sub-periosteal Resection of 4 inches of Shaft. *a*, articular cartilage; *b*, epiphysis; *c*, epiphyseal disc (with gap near centre); *d*, triangular area of young tissue; *e, e*, periosteum with new bone in its layers; *f, f*, new cancellated bone on inner aspect of periosteum; *g*, new tissue of resection cavity with small ossifying centres; *h*, fibrous prolongations; *i*, wound surface (anterior); *j*, attachment of soleus; *k*, strip of new bone; *l*, medullary cavity; *m*, conical projection of new bone.

skin incision, *i.e.*, one inch below the epiphyseal line. The sub-periosteal cavity is filled with firm, dusky, gristly-looking tissue (*g*), which continues downwards to the upper end of the lower fragment of tibia. In volume this new tissue is about equal to the resected bone. From the medullary cavity of the lower fragment of tibia there is a conical projection of osseous tissue (*n*), surrounded by weak granulations. At this point there is a small sinus communicating with the wound surface. At the posterior aspect, especially at the lower part, the periosteum is not very distinct, but blends with the tissue in front, and more sharply with the muscles (*k*) behind. Fibrous bands curve forward and penetrate (*g*). There are lateral bars of new bone projecting upwards on either side of (*n*). The wound surface (*i*) is broad, and devoid of granulations, being the tissue (*g*) covered by a film of pus. At

the level of the epiphyseal line there appears to be a thin osseous layer outside the apparent periosteum.

2. Microscopic.—The following structures were examined:—1. Articular cartilage. 2. Lateral prolongations of it down to epiphyseal disc. 3. Epiphyseal disc. 4. Periosteum. 5. New formed tissue in cavity left from resection of these. For present purposes only the last three need description.

(a.) Epiphyseal disc.—Average thickness at centre, 2 mm. Lower surface shows line of active ossification, the matrix becoming fenestrated at a distance of $\cdot 6$ to $\cdot 8$ mm. from lower surface, and then forming long trabeculae running downwards in the axis of the shaft of the bone. Between these are columns of flattened cartilage cells. Length of column, $\cdot 5$ to $\cdot 6$ mm. Thin ramifications of matrix across trabecular spaces. At extreme free surface the margins of trabeculae are ossified, forming a continuous with new cancellated tissue. Fully developed columns are narrow, $\times 250$, measuring $\cdot 025$ to $\cdot 05$ mm., and containing in places single, in others double columns of flattened wedge-shaped cells. In many the secondary capsules are distinct, in others flattened, and have disappeared. Fibrillations in matrix distinct and vertical, except in secondary capsules. At lower end of columns are masses of freed cells, in sacs surrounded by a lining of bone cells, single, or in layers two, three, or four deep. The bone cells are surrounded by granular osseous material in distinct masses. Bone cells seen, extending up trabeculae. Bone cell nuclei = $\cdot 005$, and rather more. Formed material around them = $\cdot 01$ to $\cdot 025$ mm. Spaces with free nuclei = $\cdot 05$ to $\cdot 1$ mm. Free nuclei, $\cdot 005$ to $\cdot 0075$. In some of the

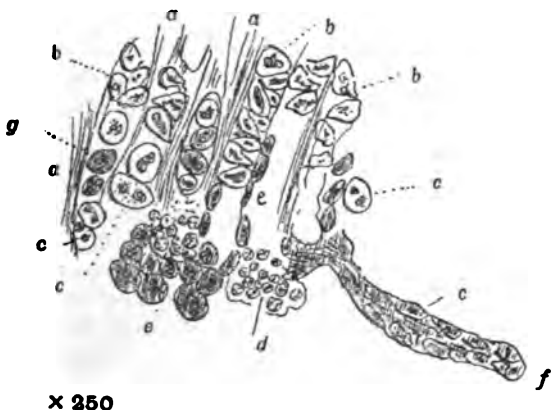
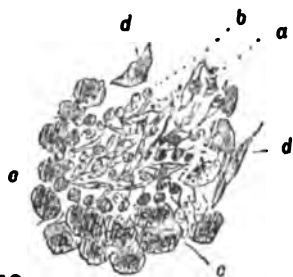


FIG. 2.—From Lower Surface of Epiphyseal Disc. *a*, *a*, cartilaginous trabeculae; *b*, *b*, columns of cartilage cells; *c*, *c*, proliferating cartilage cells; *d*, free nuclei; *e*, *e*, bone cells; *f*, new bone going to form cancellated tissue; *g*, calcified cartilage cells.

columns cartilage cells appear insensibly passing into and becoming bone cells, no distinct line of demarcation between them being discernible in such places (Fig. 2).

(b.) Periosteum.—Average thickness, 2 to 4 mm., composed of longitudinal fibres, some transverse fibres, and embryonic-looking tissue; at numerous places areas of ossification, even within the periosteum. The outer layer, separated from muscular tissue only by a band of fibrous periosteum .16 mm. thick, is a strip of embryonic-looking tissue extending down from the level of the epiphyseal disc. In this, active ossification is going on; spongy masses of bone are being formed, the bars measuring .3 to .6 mm. Internal to this, still in the periosteum, there is one detached mass at the level of the epiphyseal cartilage measuring .83 × .3 mm. Lower down, the meshes of the periosteum throughout are invaded by reticulated embryonic tissue. In other parts, but usually in close association with this embryonic tissue, there is extensive ossification, invading the whole breadth of the periosteum. The infiltrating embryonic tissue consists of cloudy-looking round, angular, and spindle cells heaped together, varying in size from .015 × .015 to .01 × .05. In some areas (Fig. 3) the more spindle-shaped and



× 250

FIG. 3.—Area of New Bone in the Planes of the Periosteum. *a*, embryonic tissue; *b*, nuclei grouped round margin osteoblasts (?); (*c*), formed bone cells; *d*, spindle-shaped bone cells.

angular cells occupy the centre of a space, while the large nuclei are round the margins, and at these margins bone is forming, and in the bone these cells are enclosed, and appear to form bone nuclei. The bone takes a deep carmine stain, the nuclei picric acid. The largest bone cells measure .02 × .01. Their shapes differ. Some are spindle-shaped.

In the midst of the spindles of embryonic tissue some take on a deep carmine stain just like the formed matter of the bone cell.

On the inner surface of the periosteum there is a triangular patch of embryonic tissue (Fig. 1, *d*), bounded respectively by the epiphyseal cartilage, the periosteum, and the new cancellated tissue of the resection cavity. This patch contains large nuclei, and the periosteum adjoining is highly nucleated. New bone encroaches on it, and signs of calcification are seen in its spindles. The cells of this new bone are identical in axis, size, and shape with the tissue in which they lie.

(c.) General new tissue of cavity.—× 40. Unossified reticulum of new tissue, with a few small bloodvessels, mostly cut transversely. The fibres of the periosteum tend to bend in in a series of curves, becoming lost in the reticulation of the newer tissue (Fig. 1, *h*). In this latter there are a few unstained areas with little masses of carmine-stained new bone in the centre. The cancellous tissue which lines the under surface of the epiphyseal disc is continuous with that lining the inner surface of the periosteum.

At the end furthest from the periosteum there is a break in the epiphyseal disc (Fig. 1, c), and its end is lined with bone. From this point small interrupted masses of bone in a line continue the level. These are surrounded by new tissue, which is continuous with that of the cavity. The cancellated tissue derived from the epiphyseal cartilage rapidly becomes broken up into small semi-detached masses, which occupy the upper part of the cavity, and are surrounded by the embryonic tissue.

$\times 250$. New tissue of cavity is seen to consist of a meshwork of fibres (Fig. 4). Average thickness of trabeculae, $\cdot 01$ to $\cdot 015$ mm. Nucleated cells in the spaces, $\cdot 005$ to $\cdot 01$ mm. These cells are scattered in the meshes or lying on the sides. In some places the nuclei are very crowded. Where there is new bone this is especially the case, and there are in addition larger cells, $\cdot 01 \times \cdot 015$. The little masses of new bone are irregular, $\cdot 35$ mm. in diameter and upwards. Bone cells are not numerous. At the margins the reticulated tissue approximates to and becomes blended with the bone-forming layer of the periosteum. Just below the epiphyseal disc the tissue is in a loose meshwork. The inner lumen of the small bloodvessels averages $\cdot 02$ mm. In some places the trabecular spindles appear undergoing calcification.

With the exception of changes at the surface of the articular cartilage, the specimens examined in this case presented in all directions indications of the active progress of repair. Twenty-six days had elapsed between the resection and the amputation; and in this time so much had been accomplished, that I entertained but little doubt as to the eventual completeness of repair, had it not been for the unfortunate intercurrent fibular and joint disease. The process of the laying down of epiphyseal bone in its surrounding cartilage was found to be going on apace, quite undisturbed, possibly accelerated by the varying fortunes of neighbouring parts. The epiphyseal disc of cartilage also presented signs of great activity, the construction of cancellated bone being carried on with rapidity. The presence of small bars of new cancellated bone on an exact level with the epiphyseal disc at a point where the latter had been destroyed by disease is interesting.

The process of reformation of bone has taken place apparently from two sources—the epiphyseal disc and the periosteum. Of these two, the periosteum appears so far to have taken a larger

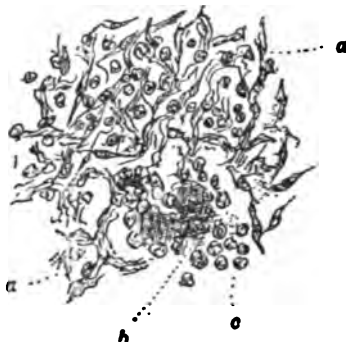


FIG. 4.—General New Tissue of Cavity. a, a, areolar network, with nuclei in meshes and on sides; b, a centre of new bone; c, crowded and somewhat enlarged nuclei around.

share, as is evidenced by its infiltration with embryonic tissue and new bone. The way, too, in which the periosteum has been opened out in all its layers, and its close blending with the reticular tissue is significant.

The condition of the cavity from which the portion of shaft was removed is the point upon which the interest of the case centres. It is filled with reticulated embryonic tissue—a texture of almost, if not altogether, the same structure as that infiltrating and lining the periosteum. In a case of this kind, the part which lymph and blood-clot may have played is no longer clear. Have they simply acted as scaffolding, serving as a support to a delicate and rapid growth of young tissue from the inner surface of the periosteum? Or have the constituent corpuscles of lymph and blood-clot evolved into spindles and actively developing nuclei?

A study of the process of bone formation, in the midst of the reticulated tissue, isolated by a wide area from the epiphyseal disc on the one hand, and the periosteum on the other, has led me to believe that there is a real and rapid transformation of embryonic material—apparently young fibrous tissue—into bone texture. Again, at the epiphyseal disc line of development, close investigation seems to show that, in some instances at any rate, *cartilage cells become ossified in situ and transformed into active bone cells without any antecedent freeing and discharge of their nuclei to form osteoblastic cells.* If these observations be correct, it seems *a priori* possible that embryonic fibrous tissue may be formed from the corpuscular and nuclear elements of lymph or blood-clot; and perhaps the comparatively small number of bloodvessels in the tissue favours this idea. On the other hand, the morphological identity of the new tissue with that of the periosteum might be said to favour the view that it is derived from that membrane.

In any case, it is quite evident that *bone formation is proceeding with greatest activity in intimate relation to the periosteum*, while the reticular tissue of the cavity possesses a much less, but nevertheless distinct capacity for the formation of bone.

VI.—FERRÁN'S ANTI-CHOLERA VACCINATION.

By JOHN BOYD, M.D., Slamannan.

PART II.

Ferrán's Anti-Rabies Inoculations.

(Continued from page 649.)

ABOUT two years ago the municipality of Barcelona gained high credit to itself and showed a splendid example to all town councils throughout Christendom. It instituted a micro-biological laboratory, and appointed Dr D. Jaime Ferrán y Clua as superintendent-director of it, with the object of studying and applying all pre-

ventive methods and solving the problems of hygiene. Immediately after induction into his charge, Dr Ferrán set to work to analyze minutely the experiments of M. Pasteur with relation to hydrophobia, with the special object of finding a reason for the necessity of such a number of attenuations as were employed by the great philosopher in order to safeguard those accidentally bitten from the effects of the inoculation so roughly made.

The question arose, Seeing the fortunate results from the primary as well as from the secondary or intensive method, does the practice of so many and so varied attenuations, which constitute the Pasteurian treatment, become necessary? Then has it been proved that the rabies virus acclimatized in rabbits, and without previous attenuation, is mortal for man? Could the prophylactic effects not be attained by a single rabies vaccination, and whether, if not unnecessary, the others are superfluous? It was only from analogy, although very rationally founded, that the illustrious master was induced to employ so many graduations; but we fail to notice a single experiment proving their indispensability. If it could be demonstrated that the undiluted virus—the superintensive—was inoffensive and efficacious, all further steps were superfluous. Some individuals having voluntarily submitted themselves to the so-called superintensive inoculations and no harm ensued, this resolved the doubt.

From friends in the Anti-Rabies Laboratory at Habana, virus, proceeding from the Institute Pasteur, was received. This was used in the trepanations in strict accordance with his rules, and the results showed that he was successful in the cultivation of the *virus lisico*. The rabbits, after the intrameningeal inoculation, showed all the phases of the course (after the sixth day)—acute debility, paralysis (progressive), etc. It was then tried whether emulsion of the bulb or the emulsion of the encephalus were the more effectual; but both were alike virulent, given the same period of incubation. Here, then, commences what Dr Ferrán terms the second period (the supra-intensive method), which he thus describes:—

“Having ascertained that massive doses of the rabies-pulp, without artificial attenuation, are inoffensive, and that the active principle, whence the immunity, is of such nature that the action of oxygen changes it with great rapidity, it is clearly seen that by no other way can prophylactic effects, speedy and certain, be attained than by inoculating it unaltered and in large doses. The other poisons, as well as that of rabies, are attenuated by simple cultivation in individuals of distinct species. It became evident that the simple acclimatizing of these germs in rabbits became inoffensive for man in large as well as small doses. The active principles of microbes as well as those of microscopic vegetations are very unstable and dializable, which qualities cause their effects to be rapidly produced. If from such principles they owe the

immunity, this has the power of being acquired before the infection has reached its disastrous effects. It is rational to suppose that the same would follow in such other morbid processes of parasitic nature as may be produced by germs of slow vegetation, the adaptability of which is notably diminished. Some of the toxic germ is much retarded in poisoning the organization with the venom it produces, or by those arising from the disturbances which its presence superinduces—the normal metabolism of the histological elements. There would be plenty of time for the modification of the system, thus sterilizing, that the multiplication of the morbid germs is obviated, by which immunity gains time on infection, so that this cannot be effected. Briefly, we may indicate that the infective process is divisible into three primary phenomena:—

“1. The vegetation of the microbe on the organization or the infection.

“2. The poisoning of the organization by the toxicants that the microbe engenders more or less directly.

“3. The property possessed by the organization of rapidly habituating itself to these venoms, causing it at the proper time to become refractory to infection.

“Always and wherever this last point is attained, on quickly injecting a convenient quantity of the virus elaborated by the microbe, the infection finds an insuperable barrier, and becomes extinguished at its origin.

“As to the facts supporting these theoretical propositions, it is unquestionable that we have made a great step in advance on demonstrating, first, that large doses of the rabies pulp, of the highest virulence for rabbits, although devoid entirely of the Pasteur attenuations, are inoffensive for man; and, secondly, that the toxic germs they contain establish such a modification in the organization that it becomes incapable of nourishing or giving fecundity to the germs contained in the saliva of hydrophobic dogs.

“The actual process we employ, influenced by the previous considerations, is this:—Immediately after the death of the rabbits trepanned, the brains extracted and treated with sterilized water and sand, 10 grammes of the encephalic pulp give 30 cubic centimetres of inoculable emulsion. Five minutes suffice to let it rest, so that the particles of sand may not obstruct the needles of the syringes. Each person bitten receives during the treatment 40 centimetres of this emulsion, which are equivalent to the active principle and the rabies germs contained in the encephalic mass of a single rabbit. This, perhaps, might be considerably reduced without prejudice to the result.”

Latterly, Dr Ferrán has improved on the method of Pasteur by a much directer and simpler plan of acclimatizing the rabies germs in the brains of rabbits. It occurred to him that to obtain

entrance into the nervous centres of these animals, the eye, from the retinal nervous expansion which carpets it interiorly, presented a shorter and more convenient way. The results bore out the idea, and since the end of 1887, instead of the wonted trepanations, they have been superseded by the injection of a drop of the emulsion into the bottom of the camera. This neatly done, no alteration is noticed in the eye operated on, and the rabies phenomena show themselves almost as rapidly as from the trepanation procedure. The majority of rabbits inoculated by Ferrán's plan die very punctually from the tenth to the eleventh day.

Enclosed in his treatise, *Estudios acerca de la Rabia y su Profilaxis*, Dr Ferrán favoured me with a written table of statistics of cases treated for hydrophobia from 10th May 1887 to 15th May 1889 in the Laboratorio Microbiológico Municipal de Barcelona.

Classification of the Wounds.		Group 1.		Group 2.		Group 3.		Total.
		Bitten.	Cauterized.	Bitten.	Cauterized.	Bitten.	Cauterized.	
Bitten on the head and on the face	Simple, . . .	1	...	1	...	5	...	33
	Multiple, . . .	3	...	8	...	15	...	
	Effectually, . . .	...	...	...	2	...	1	
Canterizations, . . .	Ineffectually, . . .	...	3	...	4	...	2	237
Uncauterized, . . .	...	...	1	...	3	...	17	
Bitten on the hands, . . .	Simple, . . .	31	...	16	...	41	...	
	Multiple, . . .	30	...	31	...	78	...	199
	Effectually, . . .	...	7	...	6	...	18	
Canterized, . . .	Ineffectually, . . .	...	12	...	26	...	31	
Uncauterized, . . .	...	...	42	...	16	...	70	5
Bitten on trunk and extremities,	Simple, . . .	22	...	30	...	55	...	
	Multiple, . . .	14	...	34	...	54	...	
	Effectually, . . .	8	...	...	11	...	...	8
Canterizations, . . .	Ineffectually, . . .	9	...	...	27	...	...	
Uncauterized, . . .	...	...	24	...	16	...	37	
Bitten on bare parts, . . .	...	12	...	12	...	...	22	5
Bitten on covered parts, . . .	...	24	...	...	42	...	37	
Bitten in different places, . . .	...	...	...	1	...	4	...	
Efficient cauterization, . . .	...	...	...	...	...	...	2	8
Inefficient cauterization, . . .	...	...	...	...	...	...	1	
Uncauterized, . . .	...	...	...	...	...	...	1	
Uncovered places bitten, . . .	...	...	...	1	...	...	3	472
8 Individuals, unbiten by hydrophobic animals, who presented themselves for treatment, . . .	...	...	...	...	...	...	...	
		101		111		252		

Died of hydrophobia during treatment, 0; after treatment, 1. Of these 472 bitten subjects there were dismissed at the end of over six months, 343; over three months, 412; over forty days, 439; less than forty days, 33. Of the wounds which were caused by dogs, 435; cats, 20; mules, 27; donkeys, 2; by instruments of autopsy, 5.

Explanations.—The first group includes all the bitten treated in this institution whose wounds were caused by animals certainly hydrophobic, and whose virus was proved in the Laboratory. The

second group includes all those bitten by animals suffering from hydrophobia as certified by veterinarians and medical men in the locality where the accident occurred. The third group comprehends all those wounded by animals deeply suspected of being hydrophobic, but which could not be subjected to observations, clinical or experimental, by professional men. The three groups—*certainly*, *probability*, and *suspicion*—correspond to those adopted by M. Pasteur.

From the statistics now advanced the following conclusions are derived:—

1. That the results of our vaccinations by the superintensive method are highly favourable under the prophylactic point of view.
2. That the preventive inoculations by this method are harmless in the human subject.
3. That the technical procedure is shorter and simpler than any other known up to date.

VII.—HYPNOTISM, OR PSYCHO-THERAPEUTICS.

By R. W. FELKIN, M.D., etc., Lecturer on Diseases of the Tropics and Climatology, Edinburgh.

(Continued from page 540.)

WE have, I think, seen that the dangers which may result from hypnotism have been fully realized upon the Continent, but from what I have written it will also be noticed that with proper precautions these dangers are reduced to a minimum; and I do not think it can be said—at any rate, with our present knowledge of the subject—that the dangers are greater than are at times involved either by ordinary therapeutic treatment or operative procedure. It will certainly be allowed that surgeons are justified in sometimes performing operations the result of which it is impossible to predict with any degree of certainty.

Apart from what I may term the ordinary risks run by patients submitting to hypnotic treatment, so convinced are many physicians and scientists on the Continent of its possible use for criminal purposes, that not a few books and papers have been published drawing especial attention to this subject, and it is one which I do not feel justified in passing over in silence, as it seems to me that it would be unwise for medical jurists in this country to altogether ignore a subject which may in the near future cause them no little trouble and anxiety.

In dealing with the subject of hypnotism in relation to crime, I would call attention to two books which I think well worthy of study. The one is by Karl du Prel of Munich,¹ and the other is

¹ *Das Hypnotische Verbrechen und seine Entdeckung.* Karl du Prel, München, 1889.

written by De la Tourette.¹ Du Prel's little book deserves the greatest attention, because he is the author of *The Philosophy of Mysticism*, and is pre-eminently fitted to give an authoritative opinion on the subject. He believes that it is high time lawyers and medical jurists should commence the study of hypnotism, because he is convinced that new forms of crime, which will be most difficult of elucidation, will soon occupy their attention. He admits that hypnotism in its present stage of development has not had time to introduce any great revolution in social circles, but he is assured that the time is at hand when criminals will seek to utilize hypnotic power for their nefarious ends. He also makes the suggestion that it may be justifiable for the law to invoke the aid of hypnotism for the detection of crime. Into this I need not follow him.

Just to show how hypnotism could be used for detecting crime, I may relate that a somnambulist was in the prison at Blois. A packet was given her containing a piece of a necktie. She immediately threw it from her with horror, and said that it had belonged to a suicide. This was correct. She then went on to describe accurately a murder which the man who had committed suicide had perpetrated. In her description she mentioned a scythe (or sickle). Nothing was known to the authorities of this, so she was further questioned about it. She then described how the murderer had thrown it into a swamp, and indicated its position. A policeman was sent to look for it, and found it in the place she had named. The woman, being a prisoner herself, had had no means of knowing anything about the occurrence.²

On the 15th of February 1889 Herr Oskar Dalmar of Munich lost a favourite dog. He advertised for it without success. He therefore sent to Frau Regina Narr, a somnambulist, who described how the dog had been lost in the market, had been caught in the Blumenstrasse, and was then in the first story of the corner house of that street. This turned out to be the case.³ Numbers of like cases could be given, but they are all too long for quotation.

Binet and Féré hold that "there is reason for condemning an inquiry by means of hypnotism. It has been suggested that a suspected or accused person might be hypnotised against his will in order to obtain from him admissions or information respecting the facts of the accusation. This process, which resembles that of torture, would have the same danger of leading a suspected person to confess a crime of which he is not really guilty."⁴ It is, however, true, as Du Prel states, that secrets can be discovered during the hypnotic sleep, and so in an extreme case it might perhaps be

¹ *Der Hypnotismus und die verwandten Zustände, vom Standpunkte der gerichtlichen Medicin.* De la Tourette, Hamburg, 1889. (The original is in French.)

² *Revue Philosophique*, February 1889.

³ *Das hypnotische Verbrechen*, pp. 90-92.

⁴ *Animal Magnetism*, p. 375. Binet and Féré, 1887.

justifiably employed. What I want to show, however, is that he considers it certain "that a cunning criminal armed with a knowledge of hypnotism can not only render more easy his own deeds, but also utilize an innocent person as his tool. And more than this, he can, as it were, put an intellectual bar to the discovery of his intellectual feat." So clearly indeed has this been shown, that it has been said that the discovery of a crime committed under such circumstances would be a matter of impossibility. Fortunately, however, such is not the case. It would be difficult—very, but not impossible, for a scientific jurist would be able to elucidate the mystery. Du Prel goes on to explain that just as it is possible for an unenlightened public to be deceived by means of hypnotism, so it is quite easy for the law itself to be deceived. He points out that want of knowledge might even lead to the commission of a judicial murder, and one cannot help thinking that he is justified when he says that a knowledge of hypnotism and somnambulism throws a very clear light upon many of the trials for witchcraft in the Middle Ages. This would be a most interesting subject for investigation, but space forbids it.

Before going further, it is necessary to premise that no one suggests that hypnotism can be utilized upon *many* persons for criminal purposes. It is only the few comparatively, those who are capable of being placed in the deepest mesmeric sleep, that could be so abused. Such an individual is under the complete power of the operator, and not only can the latter compel him at the time to commit whatever action he may wish, but, as I have before explained, he can compel him to do actions at some future period, it may be hours, days, or weeks after awakening.

A few instances may render this clear. It is possible, for instance, for a student who is well prepared for an examination to be hypnotised, and during sleep he may be told that on appearing for his examination he should forget all his work. Or again, it is quite possible to suggest to a person that he should commit a murder, and at the same time the suggestion may be given that the subject should forget who suggested the idea to him. This has been done experimentally by Liégeois.¹ In this experiment a Mrs G. was told to kill a Mr M. A revolver was given her, and at the appointed time she stepped up to him and, as she thought, shot him. Taken before a police commissioner, she acknowledged the crime, emphatically denied that she had acted under the influence of any suggestion, and declared herself to be perfectly ready to suffer for her deed, being convinced that she saw Mr M.'s body lying bleeding before her.

It is also necessary to remember that when an hypnotic suggestion of a criminal character is carried out, it is done with the greatest coolness. "Hurried on by irresistible force, the subject feels none of the doubts of the criminal who acts spontaneously.

¹ *De la suggestion et du somnambulisme avec le jurisprudence et la médecine légale.* Paris, 1889, pp. 134-136.

He behaves with a tranquillity and security which would in such a case insure the success of his crime."¹ He appears to possess increased courage and exceeding cunning, and to act with surpassing calmness. It is true, as I mentioned before, that most individuals will resist criminal or immoral suggestions, but it is quite possible for a clever hypnotist in time to break down this resistance, and in some cases it is stated that good somnambulists may be easily rendered susceptible to suggestions, not when prepared for them, but, as it were, by chance,—in church, in the theatre, at a dinner, or in a railway train.² Liégeois details three cases in which perfectly innocent people were condemned because the judges did not understand hypnotism.

Referring to what should be done in order to prevent crimes due to hypnotism, and also to discover them if committed, Du Prel says that the first point is to get the public to distinctly understand that every one who permits himself to be hypnotised runs a certain amount of danger, and the next is to prohibit hypnotism unless practised with proper precautions. With regard to the discovery of crimes due to hypnotism, a few condensed quotations from Du Prel may be allowed:—"All crimes," he says, "committed under hypnotic influence, even although the hypnotiser be the most cunning and knowing knave imaginable, and even if the crimes be most warily devised, are always liable to subsequent investigation, by which, at least, they may be discovered and the delinquent brought to punishment; but, for this to be accomplished, lawyers must understand hypnotism." The greatest difficulty in discovering such crimes lies in the loss of memory which obtains on awaking from a deep hypnotic sleep. Such loss of memory may indeed in most cases be insured. It should be remembered that, as Binet and Féré point out,³ "it is impossible to lay down an absolute rule as to oblivion on awaking; there is, in fact, every variety of case, from the most profound oblivion to the most lucid recollection, and these are all entitled to careful consideration from the medico-legal point of view." Oblivion is complete when the operator has been careful to suggest to the hypnotised subject that he should remember absolutely nothing, and this oblivion is more profound when the subject has not been recalled directly to the waking state. The amnæsia is often only partial when the subject is awakened immediately after the occurrence of a given suggestion. In this case a more or less vivid recollection of what has happened may remain. I may quote a case here from these authors which will show that this want of memory is even possible when the subject has received an injury or shock of which the effects are painful and more or less injurious:—"In the course of an experiment, one of our subjects, who was in a state of lethargy, fell down and knocked her head violently against the floor. She was not

¹ *Animal Magnetism*, p. 317.

² Liégeois, pp. 127, 418.

³ *Animal Magnetism*, p. 367.

awakened by this excitement, nor for some time afterwards, and she was then awakened by breathing on her face. On coming to herself, the subject was astonished by the pain in her head; she had the sensation of a violent blow or shock, and could not understand whence it came. We are therefore justified in the assertion, that a subject of profound hypnotism may undergo all sorts of violence without retaining any recollection or consciousness of it, unless the violence has produced permanent lesions, such as the attrition of the tissues resulting from a violent shock, etc. We even think it possible that a subject might be violated in the hypnotic state, in which case she would be unable to offer any resistance. It is evident, therefore, that when an operator has insured the subject awaking amnæsic, the latter is unable to betray the real criminal; indeed, in many cases he may not know him, and, what is worse, may calmly confess to the crime, and so shield the guilty person. The medical jurist must remember that, though in a normal state the subject is oblivious to what has been suggested to him, yet place him once more in the hypnotic sleep, and all will become clear. A "memory-bridge" (*Erinnerungsbrücke*) is thus built, bridging over the period during which irresponsible action may have taken place. Even in those cases where it is possible for the subject to be so influenced as to shield the culprit, it is impossible for the criminal hypnotist to place a bar on all chances of discovery; for, although it may be that the subject will stoutly deny everything to direct questions, yet indirect questions or suggestions made in a roundabout way will usually reveal the whole nefarious transaction. Further than this, it has been proved experimentally, over and over again, that the strong desire which the subject may have to conceal the real misdoer can be of itself utilized to lead to his betrayal. All that is necessary in such a case is to suggest to the subject that the criminal is in danger, and this will induce him to do all he can to try and mislead justice, and so, by writing or otherwise warning the criminal, justice will obtain the necessary clue. By this indirect method of investigation we possess a sure and certain means of upsetting the barrier, the fact of loss of memory.¹

An experimental case may here be quoted by way of illustration. Liégeois suggested to a lady that Mr O. had spoken slightly of her, and that she was to kill him. She was told that she was not to mention who had given her this suggestion, but to believe that she acted from her own impulse, and, if needful, take an oath to that effect. This order was obeyed post-hypnotically, and the lady was convinced of her crime. Liebault subsequently hypnotised her, but even then, when asleep, she denied that she had received any suggestion to the crime. Indirectly, however, she was induced to betray the operator, for Liebault said to her,— "When the person who gave you the suggestion enters the room you are to sleep for two minutes, and after awakening it will be

¹ Liégeois, pp. 686-690.

impossible for you to remove your eyes from him until I say, 'Enough.' " I need not continue the quotation ; suffice it to say, that all happened as was predicted, the lady even trying to screen Liégeois from discovery.¹

Already on the Continent some cases have occurred in which men who have committed a crime have hypnotised a person, and compelled him to confess to a crime he has never committed. It is also necessary to remember that a criminal who is a somnambulist may use auto-suggestion, and so hypnotise himself in order to carry out his misdeeds more successfully ; and it can certainly never be an excuse that a person is innocent because he has permitted himself to be hypnotised for the purpose of committing crime. Even in those cases in which a person has been hypnotised without consent, and although no moral responsibility has been incurred for the crime he may have committed owing to suggestion, I thoroughly agree with Binet and Féré in thinking that such "hypnotic criminals" ought to be treated like insane criminals. Tarde also shares this opinion.²

It is only fair to mention, that although perhaps the majority of authors agree in allowing that crimes due to hypnotism may be easily committed, yet De la Tourette, whilst admitting the possibility, does not think that they can be so easily carried out as Liégeois and others believe. He holds that although it is quite possible for these experiments to be made in the laboratory, where a dagger has a sheath and where a pistol is only fired in the imagination of the subject, yet that in ordinary life the hypnotist who had instigated the crime would certainly be detected. He thinks that the way in which the subject would act in public without the least precaution would invariably lead to his arrest, and considers that it would be comparatively easy to prove at the trial that the subject had not acted on his own initiative.³

I fear I have dwelt rather too long upon this subject, but I feel that it is one of some interest and importance, and before passing on I have still to refer to three points,—First, to the possibility of crimes being committed upon a person during the hypnotic sleep ; secondly, to the possibility of false charges being brought against individuals who practise hypnotism ; and, thirdly, to the fact that persons may state as an excuse for some misdeed that they have been hypnotised when such has not been the case.

With regard to crimes committed upon the person when in a hypnotic condition, the possibility varies with the stage of hypnotic sleep in which the individual is at the time. In a state of lethargy anything is possible, the person being absolutely unconscious ; but when in the somnambulistic state the individual may know what is being done, and may try, and sometimes successfully, to resist. It will probably be sufficient if I very briefly mention

¹ *Das hypnotische Verbrechen*, Du Prel, pp. 39, 40.

² *Animal Magnetism*, p. 376 ; and Alcan, *La criminalité comparée*, p. 142.

³ *Der Hypnotismus*, p. 379, *et seq.*

several interesting cases which have been thoroughly investigated, and which those of my readers who are interested in the subject may refer to. The first is the case of a girl who went to be treated by a hypnotist in Marseilles in 1858. After a few sittings she was raped when unconscious, and Tardieu, who investigated the case from the medico-legal point of view, believed her statements.¹

Another even more remarkable case is that in which a Rouen dentist committed the same crime. It is the more notable because the girl's mother was absolutely in the room at the time and was ignorant of what had taken place. In this case, it is true, the girl was nervous and hysterical, and she had evidently been placed in a lethargy. The result, however, was that she subsequently had well-marked hysterical attacks with convulsions.² This shows how, not only may a crime be committed against the person, but hypnotism may damage the health of an individual perhaps permanently.

Another case occurred in 1882. A girl wrote to a clergyman, asking him to get her into a hospital for her confinement, and stating in the letter that a young man had hypnotised and then taken advantage of her. In this case it is not very clear what was her exact condition at the time, as she was able to describe part of the occurrence. Ledame investigated the case, and believed her statements to be true.³

Another case, in which a beggar named Castellan not only ravished but eloped with a girl, occurred in March 1865. The case is well worthy of study, because it shows the distinction between the lethargic and the somnambulistic states. It was during the somnambulistic state that the man was able to compel the girl to follow him, which she did for three days. It is also interesting, because it shows that sooner or later the hypnotist loses his power, and his victim may escape.⁴

Years ago a case of the same kind, although not with the same grave accompaniments, occurred in India, and was investigated by Esdaile.⁵ A barber had hypnotised a boy, and made him follow him. At the trial Esdaile experimented in open court, and showed how he could influence persons in the same way. In referring to this case Esdaile remarked, "I hope the day is not far off when public opinion will be so strong that hypnotism will only be permitted to be used for the purposes of healing or in philosophical research."

Edinburgh readers may possibly remember a case which is detailed by Dyce in the *Philosophical Transactions*. It was a very revolting one, and the unfortunate subject remembered all that had happened in a second state of somnambulism. The case, however, appears to have been one of natural somnambulism.

¹ *Gerichtliche Medicinische Studie ueber Sittenverbrechen*, 7th ed., p. 9. Paris, 1878.

² *Der Hypnotismus*, De la Tourette, p. 336.

³ *Ibid.*, p. 345, *et seq.*

⁴ *Ibid.*, p. 351, *et seq.*

⁵ Du Potet, *op. cit.*, p. 613; and *Der Hypnotismus*, p. 358.

Apart from direct crimes against the person, it is quite possible for individuals when hypnotised to be compelled to sign cheques or even to commit forgery, and the description which Walter Besant has given in *Herr Paulus* is well borne out by facts.

Various cases which have occurred on the Continent prove that doctors practising hypnotism run the risk of having false charges made against them, and it therefore necessitates their acting with excessive caution. Sometimes persons have gone to be hypnotised solely for the purpose of blackmailing the doctor, or of having an excuse for the commission of some crime. When such accusations are made they should not be readily believed, and the accuser should be made to prove for what reason hypnotism was permitted, for a person who submits to the procedure must necessarily, to a very large extent, be held responsible for the result. Here, again, I think that the matter does not to any appreciable extent differ from what happens in ordinary medical or surgical practice. When an operation is performed, the patient having consented to it, the doctor, if he uses ordinary care, is not responsible for the result. The same thing applies when hypnotism is justifiably utilized.

Individuals may state that they have been hypnotised in order to shield themselves from the results of their misdeeds. Such cases have occurred, and it requires considerable knowledge in order to investigate them properly; it is necessary to prove that such a person is capable of being hypnotised before believing any statements of this nature. It should always be borne in mind, too, that in all cases dealing with crimes, and in confessions made by persons who have been really hypnotised, circumstantial evidence must be produced either to confirm or to disprove their statements, as such is the power which a hypnotist may possess over the subject, that in many cases the most circumstantial accounts of mythical occurrences are given, whereas, on the other hand, a crime may really have been committed, and the unfortunate individual may weave concerning it a tissue of falsehoods explaining the reason for its committal, and in most cases shielding the instigator, and the story becomes extremely difficult to unravel.

The nature of the legislative precautions which would serve as a protection against these various dangers is very difficult to suggest, but precedents exist in the Acts regulating the sale of poisons, by which the public is guarded from a very subtle and secret mode of committing crime without undue restriction on medical science. The recent Act concerning explosives provides against a species of crime if possible even more hard to detect, and the laws relating to vivisection guard against dangers and abuses akin to some which may be incident to hypnotism. In the policy and methods of these Acts the key may be found to legislation which would obviate many of the dangers of hypnotism.

(To be continued.)

VIII.—INAUGURAL ADDRESS: SKETCH OF THE HISTORY OF THE OBSTETRICAL SOCIETY.

By CHARLES EDWARD UNDERHILL, M.B., F.R.C.P. Ed.

(Read before the Edinburgh Obstetrical Society, 13th November 1889.)

GENTLEMEN,—I have now the pleasant duty to perform of resigning into your hands the office to which you did me the honour to elect me two years ago, and to thank you for the unvarying courtesy and kindness which I have received while acting as your President. I rejoice that in your choice of a successor you have fixed upon one so able and so hard-working as Dr Berry Hart. It augurs well for the future welfare of the Society that it can find a man with such a brilliant record of original work, and such a wide knowledge of our branch of the profession, both in its scientific and its practical aspects, to fill the office of President.

It is customary for the President on resigning his charge to pass in review the events which have occurred during his term of office, to note the chief papers read, and the other work which has been accomplished at our meetings, and to glance at any changes which may have taken place in our *personnel*. But on this occasion there is one event of such outstanding interest—I mean the celebration of our Jubilee, the great fact in our history that we have arrived at fifty years of existence as a Society—that it occurred to me I could not do better than give you some details of the origin and foundation of the Society, glance here and there at important points in its history, and note as we go along the more valuable original papers and communications which have been read before it. With this view I have carefully looked through the records of the Society, and I must say that, generally speaking, these records have been remarkably well kept. The reports of the meetings are fairly full; and what is quite as much to the point in the view of one who has to read them, the handwriting is uniformly legible, a remarkable circumstance when we consider how many different hands have composed them, and that all of the writers were doctors. There is one exception to this statement—for two or three meetings the records are in a lady's handwriting, doubtless the wife of the Secretary for the time being, and thus half a doctor.

It was on 4th December 1839 that a meeting was held in the New Town Dispensary, Thistle Street, for the purpose of considering the propriety of establishing an Obstetrical Society in Edinburgh. It seems to have been a movement originating chiefly among the younger members of the profession who were practising Midwifery, and who were dissatisfied with the position that branch of Medicine held in the eyes of the profession and of the public, and who were anxious and determined to make an effort to raise it to a position more worthy of the important interests it guarded and the onerous duties it performed.

For at that time, in spite of the great works of William Hunter, Denman, Hamilton, Burns, and others in this country, and of Naegele, Michaelis, Dubois, Coste, and others abroad, the practitioners in obstetrics were looked upon by their brethren as being engaged in the practice of an inferior sort of art, which had little connexion with either of the great departments of Medicine and Surgery. Midwifery, in fact, was, in England at all events, "neither fish, flesh, nor good red herring." Neither the College of Surgeons of England, nor the College of Physicians of London, nor the Apothecaries' Society examined any of the candidates for their diplomas in Midwifery, nor did they require certificates of attendance on lectures on this subject to be presented to them as part of their qualifying courses. In the year 1825 an Obstetric Society was founded in London for the purpose of rectifying this omission, and though it contained the names of most of the teachers of Midwifery at the various London Schools, and wrote endless memoirs to these three bodies, and even memorialized Sir Robert Peel, who was Home Secretary, on the matter, it was long before any change or improvement took place. But this movement showed that the teachers of the subject were, at all events, not unaware of its vast importance to the health and well-being of the community.

In Dublin, also, there was a move forward, and in the year 1838 an Obstetrical Society had been formed, with Dr E. Kennedy, the then Master of the Rotunda, for its President, the objects of which were, as he comprehensively defines them in his inaugural address, "to improve the obstetric practitioner, to extend the bounds of his science, and thus, directly and indirectly, to benefit our species."

It was thus, amidst a general awakening to the sense of the importance of this branch of Medicine, that our Society came into being.

At the preliminary meeting on the 4th December 1839, just one month after the death of Professor Hamilton, who had filled the Chair of Midwifery for nearly forty years, there were present ten members of the profession, while ten more had sent in by letter their approval of the idea of forming such a Society; and the meeting, which was presided over by Dr Fairbairn, there and then constituted itself into an Obstetrical Society, with twenty original members, and appointed a committee to frame regulations and make all the necessary arrangements. It is a remarkable circumstance that, of the twenty original members, six are still living after the lapse of fifty years—namely, Dr John Moir, Dr Charles Bell, Dr George Paterson, Dr Peddie, Dr Malcolm, and Dr Graham Weir—and long may they survive.

A second preliminary meeting was held on 4th January 1840, at which the committee reported that they had obtained permission from the managers of the New Town Dispensary to hold the meet-

ings of the Society on its premises for the next six months, and they produced the code of laws which they had drawn up; these were, after discussion, approved, and remain virtually the laws which govern the Society at the present time. I will quote the first law, because this defines the aim and object of the Society. It stands thus in the minute-book:—"The object of the Edinburgh Obstetrical Society shall be to advance Obstetric Medicine, by holding meetings for the purpose of receiving communications and conversing on subjects connected with that branch of the profession. In furtherance of this object, each member is expected to contribute to the Society such interesting cases in that department as may fall under his notice, and to exhibit any morbid specimens of interest that he may meet with. All communications are understood to be strictly confidential."

The first regular meeting of the Society thus constituted was held a few days later, viz., on Monday, 14th January 1840, when the members signed their names. It may be of interest to record the names of these original members. In addition to those mentioned above, they were,—Drs R. Renton, Fairbairn, Lewins, J. S. Combe, Pagan, F. Farquharson, John Kennedy, W. Beilby, W. Dumbreck, Charles Sidey, Alexander Wood, William Purdie, Charles Ransford, and A. Ziegler.

The first office-bearers of the young Society were,—President, Dr Beilby; Vice-Presidents, Drs Combe and Renton; and Secretaries, Dr G. Paterson and Dr Ransford. Among those who applied for admission at this meeting were Dr J. Y. Simpson, Dr Pattison, and Dr Robert Paterson of Leith, who were duly elected at the following meeting.

The first piece of public business was a case, mentioned by Dr Beilby, of Spontaneous Change of Presentation during Labour. At the commencement of labour he distinctly felt a hand presenting; eighteen hours later the head presented normally. A discussion followed, in which a similar case was mentioned by Dr Sidey, which was, moreover, complicated by hernia; and the discussion took the form of the management of labours in the presence of hernia.

At the next meeting, a fortnight later, five new members were elected and six more proposed—the Society evidently meeting a recognised want. Dr Lewins read a case of Locked Twins, which terminated spontaneously, the second born twin being alive—his paper containing a notice of six similar cases gathered from the literature of the subject; another was mentioned by Dr Moir as having occurred in the practice of his father. A valuable paper by Dr John Reid, the well-known physiologist, was communicated at this meeting, entitled "A few Observations on the Formation and Arrangement of the Membrana Decidua," in which he described, I believe for the first time, the glands of the uterine mucous membrane, and compared them to the similar structures,

not long before discovered, in the stomach. He further stated that in two uteri, examined at an early stage of pregnancy, he had found openings in the decidua corresponding to the openings of each Fallopian tube.

At the following meeting one of the members proposed was black-balled, an occurrence sufficiently rare in the Society's history to justify its mention. What the reason was for this strong measure we are not told, but possibly one of the numerous quarrels which at that time not unfrequently agitated the calm waters of professional life was at the bottom of it.

On 9th March Sir J. Y. Simpson made his first communication to the Society—a case of Central Rupture of the Perineum, with this peculiarity, that the tear was transverse, and the infant was born through it. He presented the Society with a wax cast of the preparation.

On 11th May Dr Ziegler showed his well-known forceps, and described their action; and on 25th May Dr Beilby communicated "Some Practical Cases in Midwifery." They were twelve in number, and dealt mainly with the use of bleeding, tartar emetic, and the forceps, as aids in tedious labour. In this paper was recorded one of those rare cases of complete separation of the placenta before the commencement of labour, with concealed hæmorrhage, which led to the death of the patient shortly after delivery. Case 2 was still more remarkable; it was headed, "Arm Presentation; extraordinary Uterine Contractions; Head left in Womb." It was extraordinary for more things than the contractions: the treatment at the hands of the surgeon who first saw it consisted in the administration of 300 drops of laudanum (in three doses) to begin with. Dr Beilby was then called in; but it was not until she had lost 66 oz. of blood, taken 630 drops of laudanum by the mouth and 300 by the rectum, and received two tobacco enemas, that the head was extracted by craniotomy forceps; the uterus then again contracted, and she was left till next day. After another bleeding and another tobacco enema the placenta was removed, and the patient made a good recovery. We may well feel thankful that, during the fifty years which have elapsed since then, other more efficient and less severe means of combating uterine contractions have been devised.

A little later in the session, Dr Sidey read a paper on Diseases of the Heart in connexion with Pregnancy, and advocated the propriety of speedily terminating the second stage of labour in all cases where there have been symptoms of disease of the heart.

The Society at this time began to elect Corresponding Members, Dr Fleetwood Churchill of Dublin being the first name on that honourable list.

By the end of the first session the Society had outgrown its meeting place, and the first meeting of the second session, 12th October 1840, was held in No. 13 Queen Street. The notable

feature of this meeting and session was Dr John Reid's classical paper, "Some Observations on the Anatomical Relations of the Bloodvessels of the Mother and those of the Fœtus in the Human Species." This well-known paper deals exhaustively with the utero-placental circulation, and forms the basis of most of our subsequent knowledge on the subject. It was afterwards published in the *Edinburgh Monthly Journal* for January 1841. Dr Beilby was again elected President, and the list of Corresponding Members was increased by the addition of Drs Radford, Manchester; Robert Lee, London; Montgomery and Evory Kennedy, Dublin, and others. The day of meeting was changed from Monday to Tuesday; the meetings being held on the second and fourth Tuesdays of the month. On 22nd December a publishing committee was appointed, and reported in favour of publishing abstracts of the proceedings and papers, revised by their authors, at such intervals as the Council should think proper. This report was approved of by the Society. During this session several well-known Edinburgh names first appear among the members, viz., Drs Andrew, Dunsmure, Cumming, and John Brown. Among the more important papers was one by Dr Simpson on a case of Extra-uterine Pregnancy, which went to the full time; the mother recovered, but died insane some years later, when the diagnosis was verified by a sectio. This was the first case of extra-uterine pregnancy on record in which the fœtal heart was heard. Dr Ziegler read a case of Fatal Concealed Hæmorrhage, in which the patient died undelivered. Dr Simpson reported a case of cephalotripsy, then a new operation described by the younger Baudelocque, and showed the instrument. In the course of a discussion on amenorrhœa Dr Ziegler advised the use of electricity, and described his method, which he said was very simple and very effectual.

At the end of this session there were thirty-nine members enrolled.

In the third session, November 1841, Dr Simpson was elected President for the first time, and he continued to occupy the chair without any intermission until 1858,—a circumstance which doubtless contributed in no small degree to the success of the Society, and to the extent and excellence of the work it produced. At the first meeting Dr Fairbairn read a paper on Extra-uterine Gestation, which appeared with a drawing in the *Edinburgh Journal* for 1842. At the next meeting a similar contribution was read by Dr Williamson. The most valuable of the contributions during this session were Simpson on Spontaneous Amputation of Limbs in Utero, and on Nægele's views on the Mechanism of Parturition, and the change from third to second position; Moir on the Mechanism of Face Cases, in which he advocates their being left to Nature in almost all cases; and a case of Cæsarean Section—a great rarity then, as now, in Scotland—in a small deformed woman, by

Dr Ross of Invergordon. The woman died on the fifth day, but the child survived.

The fourth session was signalized by Simpson's initial paper on the Uterine Sound as a means of Diagnosis, in which he incidentally remarks on the use and value of bimanual examination. Two cases were recorded of emphysema occurring during labour, followed by recovery. In both of them ergot had been given. And one case of death on the day after delivery, in consequence of the entrance of air into the circulation, apparently from the sucking action of a flaccid heart,—bubbles of air were found in the heart. At two of the meetings, as there were no papers, the Society discussed subjects from a list drawn up by the Council. The subjects chosen, viz., Displacement of the Unimpregnated Uterus, and treatment of the Diseases of the Os and Cervix. Dr Malcolm also read a short but graphic account of a case of rupture of the uterus where the child was hydrocephalic. The head measured 20 inches in circumference.

In the fifth session (1843-4) a curious case of imposture was related by Simpson. A young girl in the country declared that she had at various times given birth to animals resembling field mice in a state of decomposition. Several reputable persons had been present on these occasions, and on the last one an "educated" (*sic*) midwife was present, and she stated that on her arrival one had been already born, and on giving ergot two more were expelled in her presence. Specimens of the animals passed were exhibited to the Society, and turned out to be field mice sure enough, but *previously skinned*.

Simpson also made some remarks on the diagnosis of ovarian tumours and their extirpation. He mentioned that during the previous twelve months the operation had been performed in twelve cases, of which only two had died; but that in two cases, during the same time, the abdomen had been opened and no tumour found. Both these women died. Dr Patterson mentioned a fatal case of eclampsia, where the fits had produced emphysema of the face and chest. And Dr Keiller (then of Dundee) communicated five cases of placental presentation in which the placenta had come away before the birth of the child without fatal hæmorrhage. During this session Simpson read his much debated paper on the Attitude of the Fœtus in utero.

Session 6 (1844-5) began with the pleasant announcement that no contribution would be levied during the session owing to the large balance in the hands of the Treasurer. At this time the meetings took place at the houses of certain members in rotation. Dr Martin Barry and Dr G. Keith were elected members, and most of the meetings were spent in obstetrical conversations. On 31st July 1845 was held the first recorded dinner of the Society. It was a fish dinner at Newhaven, and was attended by fifteen members.

Session 7 presents no features of interest.

From April 1846 to January 1847 the minutes are wanting. At the latter date (8th session) the Society had again returned to the New Town Dispensary, and held their meetings only once a month. In fact, want of papers during the previous session seems to have told on the prosperity of the Society, and with a view to restoring suspended animation, it was resolved to publish regular abstracts of the proceedings in the *Edinburgh Monthly Journal*. On 20th January of this year Simpson read a case of Turning in Narrow Pelvis under the influence of Sulphuric Ether. This case was of interest in two points,—one the use of ether, the other the employment of version in the case of a narrow brim; the woman in her previous labour had been delivered by craniotomy after forceps had failed. She had had hip disease in childhood. At the next meeting Simpson made an elaborate communication on the use of Ether in Labour, claiming that while the suffering was in great part removed, the uterine contractions were not interfered with, and the third stage progressed normally. Carcinoma of the Cervix in Pregnancy; Labour obstructed by Ovarian Tumour and by Fibrous Tumours; Hydatigenous Ovum; cases of Spontaneous Evolution; Fatal Hæmorrhage from the Umbilical Cord; and Puerperal Convulsions connected with Inflammation of the Kidney, were among the subjects on which papers were read by various members during this session. Of these there are unusually full and interesting notes in the minutes. Dr Keiller was elected a member during this session. Again there is a lapse of a year in which no records of the public business appear in the minutes. Meetings were held, however, and non-resident members were divided into honorary members and corresponding members, as they at present exist. Dr Thatcher and Dr Matthews Duncan were elected ordinary members.

I subsequently discovered an excellent record of the proceedings of this session (1847-48) in a volume of pamphlets in the library of the College of Physicians. It was a reprint from reports in the *Monthly Journal*. Most of the work came from Simpson, who, in addition to showing and describing his forceps, made several contributions to the use of chloroform; read a case of the removal of a very large Fibroid, upwards of three pounds in weight; and at the last meeting read a report of the first two years of the Edinburgh Maternity, which was opened in St John Street in May 1844, and removed to Milton House, Canongate, in 1846. The report is a valuable one, and full of interesting statistics. The mortality among the patients delivered in the hospital, 374 in number, was 7, or about 2 per cent. Of those delivered outside, 1101, 4 died, or about 1 in 270. It is noticeable that out of the whole 1475 cases there, the forceps was only used three times and the crotchet once. A double monster was exhibited by Dr Lyell, and papers were read by Dr Moir on the Induction of Premature Labour, and by Dr Keiller on Noma.

At the second meeting of the following session (10th), 10th January 1849, Simpson read an account, by Dr Norris of North Petherton, of a case of Puerperal Convulsions, where chloroform was used with the effect of preventing any return of the fits, and subsequently made some remarks on the use of chloroform in labour; and at a subsequent meeting Dr Thatcher related two cases in which the uterus ruptured during labour, but the women recovered. During this session Dr Priestley became a member.

The records for the next few sessions are short, little more than the names of the papers being recorded. I shall pass them over very briefly. Two cases of tetanus following miscarriage, and proving fatal, were recorded—one by Dr Wood, the other by Dr Malcolm. Simpson read his paper on Labour obstructed by an Arm being caught in the Nape of the Neck; and another on the great frequency of Lacerations of the Perineum and Cervix in Natural Labour. In 1851 Dr Oldham of London, who still survives, was elected an honorary member. Dr Duncan read some cases of Spurious Menstruation in newly-born Infants; Dr Keith a case of Sudden Death after Delivery, from Clot in the Heart; and Dr Keiller a detailed account of a case of Spurious Pregnancy and Labour. More than once during these years suggestions were made for the publication of a volume of Transactions, but they came to nothing.

In 1854 (session 15) Dr Duncan read his valuable paper on the Pelvic Articulation during Labour, pointing out that the sacro-iliac joints normally allow a considerable degree of motion.

Simpson reported three cases of simple tapping of ovarian tumours which proved fatal—a serious warning regarding this proceeding which the profession were long in taking to heart.

In session 19 a change was at length made in the Presidentship, Dr Moir being elected to that office on the 9th December 1857. About this time two interesting persons were shown to the Society—one being M. Groux, whose congenital fissure of the sternum provided material for much good physiological work; the other was a woman whose head, fifty-two years before, Mungo Park, the celebrated traveller, had commenced to perforate; before he could finish the operation she was born by natural efforts; the record states that there was a "considerable depression of bone." In December 1858 Dr A. R. Simpson was elected a member. On 9th March, 1859, Dr Keiller read a paper on "A New Mode of Inducing Premature Labour," and showed the indiarubber bags he had devised for the purpose. This was, I believe, the first time in which dilators of this kind were employed. At the following meeting Dr Figg gave an account of his practice of Turning in Natural Labour. He had turned in the past two years 127 times, fifteen being cases of extra difficulty, the rest normal labours. Two mothers were lost—one after bearing her sixth dead child, the other one hour after labour, complicated from the

beginning with hæmorrhage; seven children were lost within twelve hours after birth, none of these being in the ordinary cases. Four infants had their arms broken; two severely, and fourteen slightly, sprained.

The following session Dr Keiller was elected President, December 1859. During the session there were several interesting discussions. The most important one relating to the effects of the various zymotic diseases, especially small-pox and typhus, upon pregnancy and upon the foetus. Many members took part in the debate, and cases were related where the child was born marked with small-pox, and others where it seemed to have escaped altogether, and was born alive and well. Many of the women, but not nearly all, aborted. A little later in the session Simpson contributed his first case (successful) of removal of the Oocyx for Oocygodinia. It was during this session that the Society, following the precedent of the recently formed London Obstetrical Society, bestowed upon the members the name of Fellows.

In session 22 (1860-61) Mr Turner read the first of many valuable contributions to the Society, on Displacement of the Ovaries, describing a case where the left ovary had become detached and become adherent to the mesentery. Dr M'Laren of Lasswade recounted a case of Puerperal Tetanus with recovery, and Dr Keiller a fatal case of Vomiting in Pregnancy. In December 1861 Dr Pattison was elected President, and during the following session Sir Arthur Mitchell communicated his valuable researches on the connexion between Twin Births and Idiocy, and on difficult Parturition as a cause of Idiocy. Dr Hamilton of Falkirk also raised a vigorous discussion by his strong advocacy of the use of the forceps and the consequent saving of infant life. In the course of the debate he stated that he had quite given up the use of ergot both during and after labour.

During the next session, January 1863, as small-pox was epidemic in the city at the time, a committee was appointed to draw up a memorial to the Town Council, urging the importance of getting a Vaccination Bill passed for Scotland, similar to the one in England, enforcing the performance and registration of vaccination. This was accordingly done, and a reply was received from the City Clerk stating that the Council had a Bill under consideration. This Bill subsequently became law, and has been followed by a great lessening in the amount of small-pox among us. After the passing of the Act it was criticised freely at a meeting of the Society, 24th January, but no further step was taken. In the same session Mr Lawson Tait contributed a paper on a case of Abortion of Twins. Simpson read a case of Extra-uterine Pregnancy, which he along with Dr T. Keith had opened per vaginam, thinking it was a hæmatoma, and had extracted a small foetus and placenta. The woman, after being in great peril, eventually recovered.

Dr Graham Weir was the next President, elected December 1863, and at the same time, on the motion of Dr A. R. Simpson, the list of Honorary Fellows having become very small, twenty-two names were proposed, and they were duly admitted Honorary Fellows at the next meeting. They were all obstetricians of great eminence in Great Britain, the Continent, and America. A change took place in the laws at this time, as the Council, which had originally consisted only of the office-bearers, was increased by the addition of three Ordinary Fellows, to be elected annually by ballot. There was no paper of special interest during the session.

(To be continued.)

FRENCH SURGICAL CONGRESS.—4TH SESSION, OCTOBER 1889.

Discussion upon the Immediate and Subsequent Results of Operations for Local Tuberculosis.

IN the *Revue de Chirurgie* for November 1889 we have an account in abstract of the various views of leading French surgeons on this most important topic. At best, however, the amount of information to be derived from such discussions is somewhat disappointing, and this for several reasons. In large measure statistics are referred to, but statistics, as every one knows, unless used with the very greatest care, may be made to show anything. The statistics, too, of different surgeons can seldom be fairly contrasted. One may amputate early, and another late in the disease; one may be rigid in his antiseptic precautions, another so lax as to render them useless, and so on. We also find that many of those taking part in this discussion hold in some points exactly opposite opinions, so that an inquirer is apt to be confused. Still, allowing for these difficulties, there is much to be learned from a careful consideration of the views expressed, especially if an effort is made to read between the lines.

In opening the discussion, M. Verneuil laid stress on the after-results as the real tests of the value of any operation, and accentuated the importance of a knowledge of every detail, such as the kind of patient, the age, the surroundings, the operation, and the treatment before, during, and after it.

As regards the immediate effects of operations, most were agreed that the results were good, especially when strict antiseptic precautions were carried out.

Disease of the Lungs co-existing with disease elsewhere which called for operation was not considered a contra-indication, rather the reverse. In two cases mentioned by Schwartz (Paris) "amputation was followed by cure of pulmonary phthisis which had gone the length of cavities." Most of the surgeons, however, only considered an operation when lungs were affected as pallia-

tive, and advocated amputation rather than excision under such circumstances. D. Mollière refers to the importance of shortening the duration of anæsthesia for phthisical subjects, lest pulmonary congestion should be set up by the anæsthetic, and excite the disease.

Every one advocated the use of antiseptics, but only one, Bousquet (Clermont-Ferrand), considered that union by the first intention should be abandoned. He had found it followed by a rapid return. Apparently, although using antiseptics, he would prevent union by the first intention by the use of the thermocautery, and by keeping the edges of the wound apart. Others do not seem to have shared his experience, but the possible efficacy of granulation tissue, apart from septic irritation, in destroying bacilli should be considered. With this exception, all who referred to union by first intention considered it most desirable.

In joint diseases, the choice between amputation and excision was naturally discussed by many. Some preferred amputation on every occasion. The majority preferred excision and other partial operations when the patient was young and in fair health, and especially when the upper—not the lower—limb was affected. The sooner the patient was able to be removed from hospital so as to enjoy open-air exercise the greater the chance of permanent recovery. Ollier was thus in favour of partial foot operations (excisions, etc.), and found that his results improved as he shortened his patient's stay in hospital. Several alluded to the exceptionally good results—immediate and permanent—of excisions of the elbow, and explained them by the short stay in bed and in hospital which this operation entailed.

In tubercular knee-joint disease, le Dentu (Paris) drew attention to the frequency of medullary changes in cases of white swelling. The part affected is the medulla of the shafts of femur and tibia nearest to the epiphysis. The change is a combination of tuberculosis, inflammation, and fatty degeneration, which, leading to rarefaction of the bone, contra-indicates excision in otherwise suitable cases, and delays the healing of amputations. He therefore advocates trephining the epiphyseal ends of the shaft as a diagnostic method. If this softening change should have begun, he recommends excision at once.

No direct contribution was made to the question as to whether early stages of joint disease should be treated by excision or by absolute rest, combined with therapeutic measures. Indirectly, however, the curability of tubercular disease was several times brought out, *e.g.*, in the occasional cure of pulmonary phthisis when local sources of irritation were removed; in the probability that most accessible foci were the result of others not seen (*e.g.*, in thorax or abdomen) which might be cured, as the general health improved; and in the narration of occasional permanent cures after scraping, such as of the left lobe of the prostate, testicle, etc.,

while mere scraping can never clear all the bacilli from an affected part. It would, therefore, be not unfair to conclude that there must be certain cases in which absolute rest to the joint and improvement of the patient's general health are better means of treatment than early excision or amputation. The younger and more vigorous the patient, the better the hygienic surroundings, and the less advanced the disease, the more likely is this non-operative treatment to be successful.

Bousquet (Clermont-Ferrand) recognises two forms of bone tuberculosis—(1.) A slowly but surely spreading form unaccompanied by suppuration or fungosity. For this, amputation is necessary. (2.) A circumscribed form leading to necrosis, in which scraping is very beneficial. He gives, however, no further details as regards these varieties.

The majority considered *the removal of local foci* of tuberculosis to be called for, but le Dentu (Paris), while agreeing with this view, doubted very much if the term "local" was really a correct one, and emphasized the probability of local foci being only the outcome of a previous general infection, sometimes also of a hereditary predisposition.

Glands were considered by almost all the speakers to be one of the most troublesome seats of tuberculosis. Interstitial injections were unanimously condemned; excision was advocated only when limited groups of glands were involved, and considerable reliance seemed to be placed on general therapeutic measures. Return of the mischief in adjacent glands after excision was considered almost certain. Rest of the part, in tubercular adenitis, was not mentioned.

As to fear of general tubercular infection following an operation for local tuberculosis, considerable difference of opinion was expressed. Some had never seen it; some had seen it, but thought it merely an exacerbation of previously existing deposits. Others, while they had met with a real general metastasis, considered it no contra-indication to operation. None referred to any method of avoiding it, such as the application of strong antiseptics to the raw wound surfaces, which some surgeons in this country have advocated.

For tubercular cystitis, le Dentu recommends supra-pubic cystotomy, scraping of the bladder wall, and the formation of a permanent supra-pubic fistula.

We may conclude, therefore, to continue therapeutic measures in all cases of surgical tuberculosis, to treat early stages by rest, more advanced ones, in suitable subjects, by local excision, and bad cases, especially in unhealthy or adult patients, by amputation, and similar operations where possible.

Part Second.

REVIEWS.

The Medical Profession of the United Kingdom. Being the Essay to which was awarded the first Carmichael Prize of £200 by the Council of the Royal College of Surgeons in Ireland, 1887. By WALTER RIVINGTON, B.A., M.B., and M.S. Univ. London, F.R.C.S. Eng., Surgeon to the London Hospital. Pp. 1200. Dublin: Fannin & Co.: 1888.

The Medical Profession of the Three Kingdoms in 1887. The Essay to which was awarded, under the name of "Αριστειδης," the Carmichael Prize of £100 by the Council of the Royal College of Surgeons, Ireland, 1887. By THOMAS LAFFAN, M.C.P.I., Cashel. Pp. 386. Dublin: Fannin & Co.

THE motto chosen for the title page of Mr Rivington's immense book is, "Every man is a debtor to his profession." It must have required a very strong sense of the size and weight of this debt to make Mr Rivington, a busy hospital surgeon and lecturer, take the enormous labour on his shoulders implied in writing this book. In the 1200 closely printed and well-filled pages there has been accumulated an immense mass of information, historical and statistical, legal and financial, regarding the profession, its status, its education, its divisions, its trials, and its triumphs. Some of it is uncommonly dull reading, and will have only a temporary value. The regulations of the different licensing bodies vary from year to year, and are constantly increasing in the stringency of their rules and the amount of their demands. So, as far as it deals with these, this big book will have only an ephemeral and local value. Other parts of it, especially the historical one, will have a more abiding value; and some chapters, such as the one on the divisions of medical practice and the evils affecting medical work, are interesting now, and will be of extreme value in the next century.

The suggestions for improvement make an interesting chapter, but, in fact, are not likely to be of much practical value—as overcrowding of the profession and the too free use of alcohol are noted as two of the chief factors of trouble; and these, we suspect, will not be easily got rid of.

Dr Laffan's work is much shorter, more polemical, and less statistical. The author has the courage of his opinions, and expresses his opinion on the Medical Council and on Examining Boards with considerable frankness. He actually does not believe in the absolute perfection of the Medical Faculties of the Scotch Universities, and, bold heretic that he is, has a good word to say for the Corporations. He says on page 29,—“The pretensions put

forward by the Universities as to the superiority of their degrees over corporate licenses have been disposed of once for all by the visitors of 1885. The Act of 1858 had made half qualifications of the licenses of the Colleges, while the Universities were, by means of the possession of multiple degrees then possessed or subsequently acquired, either left in possession of entire qualifications or newly dowered with them." This was palpably unjust; for, notwithstanding the modest pretensions of various Scotch witnesses, "a medical Faculty is less able than a crowd of distinguished surgeons or physicians, constituting a college, to get up the machinery for giving complete qualifications. . . . It is now quite plain to all outside the charmed licensing circle that nothing less than joint-schemes to include the Universities as well as the Corporations will meet the requirements of the case. . . . We believe that no university can supply such machinery for the professional part of the examinations as the respective Colleges of Surgeons and Physicians can" (p. 30).

Dr Laffan is equally racy on the subject of apprenticeship as a means of teaching the young medical man the "trade secrets and the thousand trifles which have nothing in the world to say to science, and which are never heard of, and can never be heard of in the lecture theatre, which should be learned during a period of apprenticeship, and which are only learned by those who have not enjoyed such a training after years of loss and suffering." The objection he finds to postponing the apprenticeship to the end of the pupil's studies is in the "utter want of modesty, and the intolerable self-confidence which characterize nine-tenths of the students now turned out of medical schools, which would be inseparable barriers to their learning anything from a practitioner who would be neither a lecturer nor a hospital magnate" (p. 87).

Nor do politicians or Poor-law guardians fare any better at the hands of this hard-hitting and outspoken free lance. Here is a charming account of the forces governing the election of Poor-law medical officers in Ireland:—"Now, there is no one who knows anything of Ireland who will dare to deny that so foul is the corruption of the members of dispensary committees, that anything like conscience is a quality unknown to them where the selection of a medical man is concerned. Orange and green, landlord and farmer, Tory and Radical, patriot and avowed self-seeker, learned and ignorant, great and small, all equally and all alike, are ever ready to drown 'the still, small voice' which whispers within, when it comes to the question of selecting a doctor for the poor. Is he a Papist, or a Mason, or an Orangeman? That is the first question that is put, and according to the answer will be the decision arrived at. Is he a relation of mine? Can I gain anything by voting for him? Shall I gratify any old spleen by voting against him? These are the further questions put to itself by conscienceless baseness; and on the response to these the decision depends. What wonder is it,

then, that every other day decency and shame are outraged, and that selections are made for which, if full justice were meted out, the selectors should be sent to the treadmill?"

Dr Laffan's remarks on Medical Schools, Hospitals, and Examination Boards are short and to the point, certainly not tending in the direction of over-much praise, but evidently absolutely honest and free from partizanship. That he is not afraid to speak evil of dignities is shown in the following awful sentences, which should, perhaps, be quoted in the smallest of type. He is speaking of Edinburgh, and comparing the University and Extramural Schools:—"The extramural teaching is, however, better in many cases. Many men have been appointed university professors who have not at all been equal to their post. The neglect of some of them is something astounding; and were it not for the University monopoly, a large number would go to the extramural schools." In the very next paragraph Dr Laffan makes the statement, which to some will prove "something astounding,"—"It is no secret also that they (the professors) compel students to take out a number of extra courses which have no place in the curriculum. Considerable jealousy is evinced toward the extramural teachers, and every quiet obstacle that is possible is thrown in their way" (pp. 217, 218). Can such things be?

Dr Laffan's conclusions, however, even after such awful premises, are very good, and will repay perusal. Briefly, they are as follows:—

1. Get rid of unpaid and underpaid labour!
2. Reconstruct the sanitary service on improved lines.
3. Competition and not interest for all the Civil Medical Services, Poor-law Hospitals, etc., with promotion, exchanges, and pensions.
4. A purged and independent Medical Council.
5. Prosecution of quacks.
6. Increased preliminary education, maintaining a high classical standard in Greek, Latin, Mathematics, and Natural Science.
7. Inspection of all Medical Schools, and disfranchisement of those that are inefficient. Universities to teach the scientific, and the Colleges the practical subjects.
8. Minimum curriculum of five years.
9. Dresserships and clerkships to be made real, not nominal, appointments. Any hospital to be disfranchised which names an undue proportion of such officials to its beds.
10. Special subjects to be made post-graduate.

If only half of these reforms are obtained, the profession will be much improved.

The Electric Illumination of the Bladder and Urethra. By E. HURRY FENWICK. Second Edition. London: J. & A. Churchill: 1889.

MR FENWICK divides his book into two parts,—Part I. The Electric Cystoscope; Part II. The Electric Urethroscopy. Part

I. may be conveniently considered to consist of three portions: 1st, The evolution and history of the cystoscope; 2nd, Its uses and capabilities; 3rd, Typical cases illustrative of its value.

Very rightly, although avoiding controversy, the author gives the chief credit for the introduction of the cystoscope, in its perfected form, to Nitze and Leiter, and points out that the various modifications it has undergone by others are chiefly in small points, such as length and thickness—which help to perfect the instrument, but do not change its essential construction. The incomparable advantage of Leiter's lamp over Nitze's has well-merited stress laid on it, the ease of repairing the former as contrasted with the latter making it of infinitely greater practical value.

At page 63 a few useful hints are given as to which instrument should be purchased, and the points which should be considered in its structure. Further, Mr Fenwick lays stress on the importance of a reliable battery and its indispensable adjunct the rheostat, an accessory to electrical apparatus which should never be neglected in medical electro-therapeutics.

Mr Fenwick finds the anterior cystoscope efficient, as a rule, for complete visual examination of the bladder, but we think the posterior may advantageously be used for exploration of the inferior third.

The rules given on page 77 for the use of the instrument are excellent, but rule 3, "Do not keep the cap in contact with the bladder wall," must of necessity be difficult to carry out at all times, more especially if the bladder be locally anæsthetic after the injection of cocaine, an application which the author recommends and carries out in the majority of cases. The heat which is produced by the lamp is not radiated with sufficient rapidity if the cap of the instrument be touching the wall of the bladder—the cap then becomes unduly heated, and harm may result. To eliminate this danger, Mr Fenwick has introduced a perforated cap, which is undoubtedly of value. The instrument recently introduced by Berkeley Hill has a double advantage in this respect; without adding much to its calibre, it contains a double tube, so that a continuous stream of water can be passed into the bladder, washing it out during examination, so as to prevent discoloration of fluid, and at the same time keeping the apparatus cool.

Chapter V. refers to clay modelling, which, as a mental remembrancer, is of value in other conditions than bladder disease, but in cystoscopic examination takes the place of cast-taking of tumours, etc., on the external aspect of the body.

Chapters VI. and VII. detail upwards of fifty cases of cystoscopic examination, with remarks bearing on their significance. These cases show Mr Fenwick to be a careful and trained observer, and in many instances entitle him to claim supremacy for the cystoscope as a diagnostic agent over both the sound and lithotrite.

Case 33 shows excellently how negative results by the sound

may deceive the surgeon in cases where cystoscopic examination would enable him to make a positive diagnosis.

The precancerous conditions and cases cited (pages 153-160) seem initial beginnings rather than precursors of cancer. Cases 58-62 inclusive are examples of the cystoscope preventing diagnostic incisions into healthy bladders, and thus saving the patient from the risks incident to such incisions.

Chapter VIII. refers to the rank of the cystoscope in diagnosis, and with most of the author's conclusions we agree. No doubt many surgeons have the *tactus eruditus* in a special degree, but there are cases where no sufficient data can be obtained to form a diagnosis—e.g., grant that the bladder can be excluded as the seat of the disease, which kidney is affected? This can frequently only be determined by the cystoscope. Cases 57-62 illustrate this.

We agree with the author that the indiscriminate use of the cystoscope or of the sound may be hurtful to the patient, but by attention to the rules on page 77, and to the cautions given on page 208, we believe that the cystoscope and the sound may be used with equal safety to the patient. The cystoscope can never take the place in bladder diseases which the ophthalmoscope and laryngoscope have taken in diseases of the eye and throat; but in obscure cases of urinary disease, in which differential diagnosis between renal and vesical cause is desired, Mr Fenwick has shown in his book that the instrument has become of very great value when in the hands of those skilled in and accustomed to its use.

In the urethroscope of Leiter, dealt with in the second portion of the book, most of the difficulties previously experienced in visual examination of the urethra have been overcome. It is an instrument which in some few cases is of value; but Mr Fenwick is right when he states that in the majority of cases of stricture purposive and delicate handling of bougies is of much greater importance than any aid that visual examination can give. In an intractable gleet benefit may be got from a knowledge of the exact seat of the disease.

Generally the book is well written and illustrated, and the references to literature on the subject given at the end of the work are valuable. To those interested in the surgery of the genito-urinary system it well repays a careful perusal. Mr Fenwick has certainly done very much to make the cystoscope one of the necessary instruments in the armamentarium of a well-equipped surgeon.

Lessons in Gynecology. By WM. GOODELL, A.M., M.D., Professor of Clinical Gynecology in the University of Pennsylvania, etc. Third edition, thoroughly revised and greatly enlarged, with 112 Illustrations. Philadelphia: J. A. Davies.

DR GOODELL'S lessons have long been out of print, and this new edition will be welcomed by numerous readers, whose acquaintance-

ship with the author has been made by reading his delightfully fresh clinical lectures as reported in the American journals. Though we can hardly say that the writer has in all cases succeeded in bringing his subject matter fully up to the times, still there is an abundance of clinical material, and a terseness in the directions for treatment, as well as a thoughtful and scientific attention to questions of etiology not in all cases included in systematic treatises quite sufficient to recommend the book to a large circle of readers, to whom we are sure it will prove both pleasant and profitable.

A Text-book of General Therapeutics. By W. HALE WHITE, M.D., F.R.C.P., Senior Assistant-Physician to, and Lecturer on *Materia Medica* and Therapeutics at Guy's Hospital. London: Macmillan & Co.: 1889.

THIS is a book which should be read and studied by all practitioners. It is quite out of the ordinary run of works on therapeutics. The book contains twenty-three chapters. Chapter 1. General Medical Climatology. 2. Classification of Climates. 3. Treatment of Disease by Climate. 4. Treatment by Compressed Air. 5. Certel's Method of Treatment for Chronic Cardiac Disease. 6. Diet. 7. Diet in Different Diseases. 8. On the Drinking of Water. 9. Baths and other External Applications of Water. 10. Cold Water as an Antipyretic. 11. Artificial Baths. 12. On Lavage, or Washing Out the Stomach. 13. Massage. 14. The Weir-Mitchell Method. 15. Venesection. 16. Electricity—Physical and Physiological Facts of Importance in Medicine. 17. Electro-Diagnosis. 18. Electro-Therapeutics. 19. Hypnotism: Its Mode of Production, Phenomena, and Subdivision. 20. The Therapeutic Applications of Hypnotism. 21. Metallo-therapy. 22. Treatment of Diseases of the Spinal Cord by Suspension. 23. General Treatment of Acute Diseases, Convalescence, and Insomnia. These subjects are treated in an interesting way, and the views expressed are generally sound. We have much pleasure in recommending this book to the notice of our readers, feeling confident that it will well repay perusal and careful study.

A Guide to the Alterations in British Pharmacopœia (1885). By PROSSER JAMES, M.D., Lecturer on *Materia Medica* and Therapeutics at the London Hospital, etc. Third Edition. London: J. & A. Churchill: 1889.

WE are glad to see that this valuable little work has reached a third edition in so short a time. It shows that it supplies a needed want. It will be much prized by all those who studied *Materia Medica* prior to the publication of the present edition of the *British Pharmacopœia*.

Kemp & Co.'s Prescribers' Pharmacopœia of New Drugs, etc.
Bombay : Kemp & Co. : 1889.

THIS book is essentially an advertisement of Messrs Kemp's many preparations, but contains much valuable information regarding most of the substances which have been recently introduced into medical practice.

The Treatment of Flat-foot. By BERNARD ROTH, F.R.C.S.
London : John Bale & Sons : 1888.

Mr Roth takes a very simple and practical view of flat-foot. It is a falling down, more or less, of the arch of the foot. It is the result of giving way of the ligaments of the inner tarsus, when they are not sufficiently assisted by the leg muscles. His treatment is equally simple, and seems to be efficacious. He recommends a wedge to be applied to the sole of the boot, with the thick end at the inner side. In this way the weight of the body in standing or walking is thrown more towards the outer side of the foot, and the inner side is relieved. This mechanical means is supplemented by massage applied to the leg and gymnastics to strengthen the muscles. The "wedge-sole" is ascribed by Mr Roth to Mr Thomas of Liverpool. But it has been employed in the Edinburgh School for many years, having been introduced, we believe, by Dr Heron Watson.

A Guide to the Selection and Adaptation of Orthopædic Apparatus, with a detailed Description of their Salient Points. By F. GUSTAV ERNEST, Orthopædic Mechanician. Illustrated by 46 "Ink Photo" Plates and 71 Woodcuts. London : Illustrated and published by Sprague & Co. : 1889.

As a complete and admirably illustrated account of orthopædic apparatus, we can strongly recommend this book. Most surgeons would probably prefer simpler forms of apparatus than the majority of those here figured and described, but we have a large selection of the most approved forms from which to choose. Chapter I. is a "General Description of Mechanisms," i.e., of the various forms of joint and spring used, with remarks on materials. Chapter II. treats of apparatus for the nose and ears, and in like manner succeeding chapters deal with apparatus for long neck spinal curvature, affections of the upper limb, hip-joint, knee-joint, talipes, paralysis of lower extremities, hammer toe and bunion, long limb, and hernia. As a book of reference it will be of great service.

Watts' Dictionary of Chemistry. Revised and entirely Rewritten. By THOMAS MUIR, M.A., Fellow, and Prælector in Chemistry, of Gonville and Caius College, Cambridge; and H. FORSTER MORLEY, M.A., D.Sc., Fellow of University College, London, and Professor of Chemistry at Queen's College, London. In Four Volumes. Vol. II. London: Longmans, Green, & Co.: 1889.

Watts' Dictionary of Chemistry has long been known as a standard work and an invaluable book of reference to all who took an interest in chemical science. We had occasion to speak favourably of vol. i., and the second volume fully maintains the high standard of the first. This volume extends from Ch. to In. No science in the present day is making greater advancement than chemistry, and the authors have shown that they are acquainted with the most recent discoveries, and consequently we have in this second volume the very latest information regarding the various substances treated of. The authors have had the assistance of many distinguished chemists; and if the two remaining volumes equal the two already published, *Watts' Dictionary of Chemistry* will still be the most valuable work of reference.

An Introduction to Chemical Science. By R. P. WILLIAMS, A.M., Instructor in Chemistry, Boston, U.S.A. Edited and Revised by B. P. LASCELLES, M.A., F.C.S., Assistant Master and Librarian, Harrow School. London: Ginn & Co.: 1889.

IN the preface we are told that this work aims only at giving an outline of the science, and that it is meant to be a manual intermediate between the Natural Philosophy Primer and the minute and detailed text-book. As an introduction to the study of chemical science it is likely to have a wide circulation and a high reputation.

Practical Organic Chemistry: the Detection and Properties of some of the most important Organic Compounds. By SAMUEL RIDEAL, D.Sc. (Lond.), Fellow of University College, London.

IN this little book we have in a concise form a collection of the more important tests and reactions of the common organic compounds. It should be in the possession of all students.

Inebriety: its Etiology, Pathology, Treatment, and Jurisprudence. By NORMAN KERR, M.D., F.L.S., etc. Second Edition. London: H. K. Lewis: 1889.

It is only a year since the first edition was issued. Dr Norman Kerr gives an exhaustive account of the condition known as Habitual Drunkenness or Inebriety. The book contains so much

information on every aspect of the disease that it forms a most valuable work of reference. Hence, probably, the speedy demand for a second edition.

The Treatment of Female Inebriety in the Cultured Classes (a résumé of 27 years' experience). By MRS L'OSTE. London: H. K. Lewis: 1889.

THE points in Mrs L'Oste's pamphlet are—first, that the want of success in the treatment of educated women in the various homes has been due to their being associated with women of the lowest orders, who have more than undone any good that the separation from drink might have effected. In the second place, want of success has been caused by the removal of alcoholics gradually instead of at once; and, thirdly, by the shortness of the period of confinement. Mrs L'Oste would treat inebriety as a disease, would remove all alcoholics at once, and would keep the patients in confinement for a period of one year at the very least. She would give the inmates of a retreat plenty of amusement and occupation, and would keep them under observation for some years after their discharge.

Health at Home Tracts. No. 1. *How to avoid Dying before the Time; and No. 2. On Breathing and Ventilation.* By ALFRED SCHOFIELD, M.D., etc.: Religious Tract Society.

THESE two tracts are just the kind of thing that ought to be widely circulated among both rich and poor. They are short and pithy, are written in a simple and clear manner, and being only one penny each, are within the reach of most. We hope that they will be largely read, and that the wholesome advice contained in them will be generally acted upon.

The Wife's Help to Indian Cookery: being a Practical Manual for Housekeepers. By W. H. DAWK, Assistant-Secretary to the Board of Revenue, N.-W. Provinces. London: Elliot Stock: 1888.

WHEN one gets into a hot climate the danger of inflammation is transferred from the air-passages to the liver and the intestinal canal, hence the purity and wholesomeness of food and water become of increased importance. Great injury to health comes from the ignorance of Europeans on the nature and condition of the food articles in the bazaars, and the artful tricks and negligence of khansamahs and cooks. On such matters this book is full of practical information. The chapters on purifying water, attending to the drainage of the kitchen, and similar matters, are especially deserving of commendation, as bringing hygiene into a place where it is much needed. The book will also be useful as showing the great variety of available foods in India, and how they may be best dressed in an agreeable form.

Buxton: its Baths and Climate. By SAMUEL HYDE, L.R.C.P.,
M.R.C.S. London and Manchester: John Heywood: 1889.

THIS is a very interesting medical guide to an increasingly popular health resort. Though apparently a first edition, it is in reality an extension of a former volume entitled "Peakland." The earlier chapters are topographical, chemical, and historical. There are some interesting notes of the visits of the unfortunate Queen of Scots during her captivity in England. The medical action of the waters is considered, and advice given as to the best mode of using them. Of special interest to the profession are the chapters on the "Buxton Thermal Cure," on "Absorption in Baths," and on "Massage." In speaking of climate the author endeavours to show that Buxton is suitable for phthisis, and that phthisical cases are benefited. This he believes to be due to the altitude and the consequent purity of the air, its coolness and dryness, the large amount of ozone and the intensity of the light, all of which are inimical to the tubercle bacillus, and cause increased respiratory action. A section on the town and itineraries will be very useful to residents and visitors.

Master of his Fate. By J. MACLAREN COBBAN. One Volume.
Edinburgh: William Blackwood & Sons: 1890.

THIS powerfully written and interesting story has had the hallmark of success already imprinted by its appearance in our beloved old friend *Blackwood's Magazine*. It has a sort of right to be noticed in our pages, which so rarely condescend on fiction except in medical reports, as it is dedicated in a very pleasant preface to a member of our profession. The hero is a doctor, and a good one, and the plot of the story is on the borderland between science and scepticism. The villain of the tale is a selfish egoist, beautiful, healthy, and young as Apollo, but maintaining his perennial beauty, health, and youth, by acting much as a vampire—but on the nervous systems of his victims, and not their blood. The good doctor is his great friend, and does not suspect him till the end is near. He saves the heroine, who is the chief victim, and of course marries her. He shows wonderful powers both of diagnosis and treatment, and only escapes from winning the secret of immortal youth by the suicide of the vampire.

The story is short, and keeps up the interest to the end. The name is taken from a brave verse by a brave man, who is helping to revive literature in Edinburgh, which truly needs reviving. Buy and read the book, and you will find who wrote the verse.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXIX.—MEETING II.

Wednesday, 20th November 1889.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. ELECTION OF NEW MEMBERS.

The following gentlemen were elected Ordinary Members of the Society:—A. Home Douglas, M.B., C.M., Ed., 6 Grosvenor Street; Alexander J. Keiller, L.R.C.P. & S. Ed., F.P. & S.G., 21 Queen Street; G. Keppie Paterson, M.B., C.M., Ed., 17 Forth Street; William Stewart, M.D., 105 Ferry Road, Leith.

II. EXHIBITION OF PATIENT.

Dr John Thomson showed a little girl, aged four, with a rounded patch of FAVUS about an inch in diameter on the outer surface of the left upper arm. There had been no favus on the scalp or elsewhere. The other members of the family, including the cat, were free from the disease. The disease began about three weeks ago, and now presented the usual appearance of favus on the body.

III. EXHIBITION OF SPECIMENS.

1. *Dr Kennedy* showed FOUR SMALL CALCAREOUS PLATES, which had been passed by a boy, 11 years old, early in October. The boy had been in good health till the day the concretions were passed, and since then there had been no bad symptoms. On that day he went to school rather out of sorts, and suffered so much from colic that about 11 A.M. he was sent home. On the way home the bowels were moved involuntarily, and in the cleaning process which followed these plates were found embedded in fæces. They were all about the same size, $\frac{1}{2}$ inch broad and $\frac{3}{4}$ inch long. Three of them were about $\frac{1}{8}$ inch in thickness, quite flat and almost smooth on one side, the other surface consisting of rounded elevations of all sizes, from that of a lentil downwards, with furrows between. On the fractured edge the stratified appearance common to concretions was seen, and converging lines passed from the furrows marking off indistinct wedge shaped areas. The fourth plate was much thinner than the others, and the elevations on the one surface were almost microscopic, and stood boldly out from a general flat surface. Under the lens the general surface was rough, and sparkled at various points. The opposite surface, as in the other three concretions, was flat and smooth. It was much darker than the others, evidently containing a much smaller proportion of

lime salts. The only chemical examination as yet made was the solution of a small piece in acetic acid, this taking place slowly with effervescence, the acid becoming brown and containing a few undissolved fragments. A few drops of the solution were then diluted with water, and when neutralized by liq. potassæ what appeared to be phosphates were precipitated. The plates had evidently formed on some foreign body, and the thin plate probably indicated that the body had lain in one position for a long time, one surface not being so much exposed to the action of fluids as the others. The boy had swallowed a short stick of indiarubber sixteen months previously, on the four sides of which these plates might have formed, only they were a little too large without the assumption that the indiarubber had swollen. Water had very little effect on indiarubber, but it was difficult to estimate the possible effect of the prolonged action of intestinal secretions. To account for the lime salts it was pointed out that Edinburgh water was somewhat hard, but that in addition the family had spent two successive summers at a place where the water supplied was so hard, that for washing, etc., they had to resort to well water.

2. *Dr Troup* exhibited an **INTESTINAL CONCRETION** passed by a patient 30 years ago when oatmeal was more used as food than now. It was of an irregular oval shape, facettèd, soft and velvety to the feel, and measured $1\frac{1}{2}$ inch in its longest diameter, and 5 inches in its greatest circumference. Its section showed the concentric arrangement of its constituent parts. It was formed by the felting together of the fibro-vascular tissue of the pericarp of the oat and mineral matters. A micro-photograph of a scraping of it was shown, in which the truncated and pointed fibres and spiral vessels of its vegetable constituents were well seen. *Dr Troup* also said that in meal mills, in the sieves which sifted the meal as it left the millstones, such concretions, not so firm nor concentrically arranged, were frequently formed by the rotatory motion of the sieves, and that the peristalsis of the intestines brought about a similar result in the human body.

3. *Dr James Ritchie* exhibited a **LONG PALE HAIR** which was tied in a loop round the cervix-penis, and the free end wound twice round it, causing balanitis, much swelling of the glans, and deep ulceration of the cervix. As the hair was pale it escaped observation for a considerable time, during which there was little improvement from treatment beyond what was produced by the removal of decomposing discharge. After removal of the ligature recovery was rapid.

IV. ORIGINAL COMMUNICATIONS.

1. *Dr Leslie* read his paper on **THE CURE OF FACIAL NEURALGIA, ODONTALGIA, AND ALLIED NEUROSES**, which appeared at p. 614 of this Journal.

Dr Brakenridge remarked that the idea of relieving neuralgia of the fifth, as well as frontal headache, by means of stimulation of the nostrils was by no means new. Every one was familiar with the use of a scent bottle in headache. After a suggestion made to him by Dr P. M'Bride he had frequently, during the last few years, used a very strong snuff containing a little pepper with distinct effect for the relief of facial neuralgia. By this means the pain had been, in many cases, promptly relieved. In none, however, had he met with such permanent cures as those reported by Dr Leslie as resulting from the employment of salt. The following case bore upon Dr Leslie's suggestion, that salt applied to the nostril might possibly prove to be a means of arresting epileptic seizures. An old lady suffered from severe and painful attacks of shaking of the left arm and leg, which were believed to be due to a carcinomatous tumour situated at the upper part of the fissure of Rolando. These fits of Jacksonian epilepsy could be entirely controlled by the prompt use, when they threatened, of a very strong scent bottle. A very remarkable point in connexion with the cure which had proved so effectual in Dr Leslie's hand, was that in health the nostrils were naturally laved with tears, which were simply a strong solution of salt. Was it not possible that some interference with the passage of tears through the lachrymal ducts into the nostrils, and the absence from the nerve endings there of their natural stimulant, might have something to do with the production in the centre for the fifth nerve of that altered condition which was manifested by pain? The special value of salt in relieving neuralgia might thus be explained.

Dr Watson Campbell said he had been much interested in the report of the cases read by Dr Leslie, as well as in the treatment and the success which followed. He had been reminded of the treatment by a friend many years ago, of all cases of facial neuralgia, which was somewhat like that adopted by Dr Leslie; this was the use of vinegar instead of salt. He used to fill a teaspoon and bring it close under the nostril of the affected side, and, compressing the other, tell the patient to draw it up by a sudden nasal inspiration. He had seen a good number of severe cases relieved, if not cured, instantaneously in this way, and yet he could give no reason why he had not followed the same treatment in the cases that had occurred in his own practice. Referring to the effect of insufflation in bronchial asthma, he said an allied case of rather serious interest occurred in his own family. About three years ago his son, then thirteen years old, suffered much from spasmodic cough. His ailment began like an ordinary cold, but soon assumed marked peculiarities. The cough was never followed by expectoration. It never disturbed the patient during night, but the instant he woke in the morning a very violent fit of coughing came on, and did not cease till the boy was quite exhausted. It was soon noticed that it recurred at regular intervals; these were very

short from the outset, and stood for a long time at an hour. After a while—he could not remember how long—the intervals diminished to thirty minutes. In treating the case attention was given to the bowels. Quinine, arsenic, and iron were given; sinapisms were applied to the spine; douches, hot and cold, were used, but none of these afforded the slightest relief. The inhalation of ether arrested the cough at once, but did not prevent its return, nor extend the interval. The consequence was that, owing to the frequency of administration, and the quantity used, the state of affairs became alarming, as the patient was hardly ever free from its effects. Fortunately it occurred to him to try the effect of swabbing the throat with a solution of nitrate of silver, and this being found quite successful the ether was put aside. Again, however, it was found that this treatment only stopped the cough, but did not prevent its recurrence, and feeling uneasy about the quantity used, he thought he would try a solution of alum. This answered quite as well as the other, and was not likely to prove injurious. The patient, however, required a constant attendant with the swab ever ready for application—an inconvenience which can easily be conceived. Drs G. W. Balfour and M'Bride saw him and heard him cough, and both agreed with Dr Campbell that it was reflex. They approved of the treatment that was being followed, but further suggested a visit to the Channel Islands or a long voyage. There was, however, an objection to island or voyage which it was difficult to overcome, and, luckily, something equally good was soon stumbled on. A friend who heard him cough on one occasion suggested snuff, in the hope that “ae diel wad ding oot anither”—that sneezing would stop coughing. This was at once tried, and the result was simply marvellous. The tiniest pinch was sufficient to arrest the spasm at the beginning, and the patient, being provided with a small box of snuff, was able to attend to himself. In a comparatively short time it was observed that the intervals lengthened, and, within three weeks from the first pinch, the cough entirely left him. Dr Campbell said that there was one very remarkable thing about the remedy in this case: if the patient ventured to indulge in a pinch, *when not required*, he was punished by violent sneezing, whilst it seemed powerless to cause this when taken to check the cough. He mentioned this case rather particularly, because he thought it interesting in itself, and as also tending to show that other substances besides salt were of service in such cases as Dr Leslie had reported. As for the *modus operandi*—he would not attempt to explain it, but these remedies seemed to him to have a *divertive* action.

Dr James had to express the pleasure which he had felt in listening to this interesting paper, and he had no doubt that, like others present, he would take the earliest opportunity which presented of testing the practical value of Dr Leslie's mode of treatment. What he had to say just now, however, was not in

the way of criticism. He wished merely to state some ideas which occurred to him when hearing the paper read. In the first place, salt seemed specially useful in cases of nerve disturbance and pain. In hay-asthma the injection of salt and water into the nostrils was often beneficial, in quinsy the rubbing of the affected part with salt might ameliorate the symptoms, and in toothache the old plan of rubbing salt or soda on the gum was well known. But how might the application of chloride of sodium to the nasal mucous membrane alter neuralgic pain? It was evident that facial neuralgias should be specially amenable to such treatment, for in them all, only one nerve, the fifth, was concerned, and so they might expect that the application of a remedy to the peripheral termination of one branch would readily affect the others. In this connexion, however, the statement made by Dr Leslie that bronchial asthma was similarly ameliorated by this treatment was interesting, because here they had another nerve, the vagus, involved. Another point was that the nasal mucous membrane was specially sensitive. Physiologists know that whilst the sensibility of the tongue at different parts might be tested by the galvanic current, it was impossible, or nearly so, to perform any similar test as regards the nose, owing to the intense pain which the electricity caused. The application, therefore, of any substance to the nasal mucous membrane might be supposed to act with specially great effect; but, on the other hand, from his own experience he could testify that the application of salt in the manner proposed by Dr Leslie was not painful. Should salt act better than other substances? From Dr Leslie's results it would certainly seem to do so. Other substances could, however, act beneficially, for, as was well known, the habitual snuffer seldom suffered from cold in the head.

Dr Smith said he was very much interested by what Dr Leslie had brought forward in his paper. He was at a loss, however, to understand how the peculiar curative action of the remedy was effected. Neuralgia properly so called was ascribed to various pathological changes either in the nerves or nerve sheaths, or in the nervous centres themselves. Other forms of pain often denominated neuralgia were due to organic changes in structures where sensory nerves were distributed. In odontalgia, for example, the pain arose from various pathological conditions which until they were removed would continue to act as its exciting cause. The pain here might originate in mere exposure or in gangrene, or even mere oedema of the pulp, or other lesions, producing irritation of some kind. How, then, unless the insufflation of salt into the nostril acted by paralyzing exclusively sensation in some reflex manner, did it permanently cure the state of matters in Dr Leslie's cases? If it were merely the pain which was thus arrested, he supposed some alteration in the molecular elements of the nerve, or even, in certain of the cases, in distant nerves

must have been effected; or some selective influence have been transmitted to the nerve centres productive of lasting effects. He considered the paper an extremely interesting one, and would like to know if Dr Leslie held any particular views as to the rationale of the treatment.

Mr Cathcart thought that the subject raised by Dr Leslie might be considered to be part of a larger one, namely, that there is a nervous association between certain sensitive cutaneous and mucous areas and deeper parts below. The mucous membrane of the nostril being part of the respiratory tract, its nerves might be associated with those supplying the lung and also with the facial nerve, since some at least of the facial muscles were respiratory. This was analogous, at least, to Hilton's theory that the same nerves which supplied joints, supplied also the muscles acting on those joints and the skin over these muscles or their insertions. This theory had recently received support from Charcot's hypnotic experiments. He did not think that we need exclude real inflammations from those affected in this way, because in surgical practice it was common to find that counter-irritation greatly improved the condition of actual inflammations.

Dr M'Kenzie Johnston said that his difficulty in comprehending Dr Leslie's paper was due to the almost universal success which had followed his treatment. He could have better understood it had there been more failures. Neuralgia was a symptom, not a disease, and was due to various and many causes. Yet the same simple treatment seemed to cure them all. How did Dr Leslie explain his treatment? Was it the result simply of counter irritation of the nerves in the interior of the nose? Hack and Mackenzie of Baltimore had shown that there was a sensitive spot on the inferior turbinated body which gave rise to various neuroses, and they recommended counter-irritation of this body for neuralgias due to swelling or inflammation of it. M'Bride in a paper published in 1884 went further, for he recommended cauterizing even the interior of the healthy nose in cases of troublesome neuralgia. He (Dr Johnston) had seen other applications to the nose produce an explosion of nerve force, and so relieve nervous cough. He had used snuff on himself during a paroxysm of irritative cough, and boracic acid, coffee, quinine, etc., insufflations had been used in whooping-cough. He thought Dr Leslie had done good by drawing attention to this subject, as it showed the importance of examining the interior of the nose.

Prof. Greenfield considered that Dr Leslie's communication was of great value, as indicating that pain might be removed by very simple means without removing the cause, and instanced cases of severe persistent localized pain which had been cured whilst the apparent cause continued. The paper might well call the attention of medical men to the revision of the current views as to the physiology and pathology of pain.

Dr D. W. Aitken suggested that the effect of the remedy might be explained by the physiological fact that, if, while along one branch of an afferent nerve an irritation is carried to a centre, another afferent branch of the same centre is stimulated, the former central state is neutralized. As an illustration a case of Prof. Chiene's was mentioned. The patient suffered from pain and spasms in connexion with the upper part of the 5th as well as of the facial. Prof. Chiene pressed firmly upon the infra-orbital as it emerges from the foramen with instant relief of the symptoms.

The President said the Society was greatly indebted to Dr Leslie for his interesting paper. Dr Leslie had recorded an important series of cases, honestly relating his failures as well as his successes, and explaining how he had been led to adopt the treatment for neuralgia he had now submitted to his professional brethren. The measure he had proposed was simplicity itself, and was so safe in its nature that many members of the Society would no doubt put it to the test in their own practice.

Dr Leslie thanked the members for their kind reception of his paper, and for the able discussion which had followed it. The study of his cases had led him to the conclusion that neuralgia is a disease in itself, and not a necessary accompaniment of certain pathological conditions, such as gangrenous tooth-pulp, referred to by Dr Smith, which might precede it. He was glad that Professor Greenfield supported this view. In reply to Dr James, he did not think that the term counter-irritation applied to the action of chloride of sodium was quite legitimate, although doubtless there was counteraction, nor was he aware that mere alkalinity could explain the reflex inhibition of pathological nerve impulse. The afferent nerves concerned were almost certainly branches of the fifth, and not of the olfactory. He had designedly restricted the scope of the present paper to practical results, and had avoided theoretical considerations, but had been greatly interested in many points of nerve physiology, especially those concerning the essential nature of neuralgia, the nervous element of spasmodic asthma, etc. He submitted that his method of treatment formed a new basis for their study.

2. *Mr Francis M. Caird* read a paper on the TREATMENT OF GANGRENOUS BOWEL IN STRANGULATED HERNIA, which will appear in a future number of this Journal.

Prof. Chiene believed that the suggestion of Mr Caird was a valuable one. He had imitated Nature's methods. Prof. Chiene congratulated him on the clearness with which he had demonstrated the method, and it appeared to him well worthy of more extended trial. The fatal result in the second case was, in his opinion, altogether unconnected with the procedure by which the dead portion of the gut was invaginated within the lumen of the bowels. The only difficulty in the operation seemed to him

to be this, that it would not always be an easy matter to fix the points where the stitches were to be introduced, nor would it be an easy matter to say how much of the bowel was to survive, how much to die.

Mr Cathcart thought that since the vitality of the whole of the strangulated bowel was generally impaired by the strangulation, it would only occasionally happen that the ulcerated patch on the included bowel could be treated as a small punctured wound would be in a piece of healthy intestine. In other words, that stitches could not be relied upon when passed through bowel which, if not already inflamed, would probably become so when the circulation was restored. Further, with regard to the transverse ulceration at the seat of constriction, he was not prepared to admit that no constriction would be likely to follow its being stitched together, because none followed the healing of a piece of sloughed bowel in intussusception. In the latter case the included bowel was gangrenous and sloughed away, but in *Mr Caird's* case the included part was only impaired in its vitality, and might survive as an internal spur. While agreeing with the most of what *Professor Chiene* had said, he thought that the presence of an ante-mortem stricture, not demonstrable post-mortem, might sometimes be also explained by muscular spasm as well as by paralysis.

Dr Scott Lang asked whether *Mr Caird* would not lay more stress on the question of the condition of the patient, and the urgency of the symptoms. He had recently operated on a case where the bowel was found gangrenous, but as the patient's condition was not critical he decided not to pull down any more gut, but to leave it undisturbed. True, a faecal fistula formed, but it was subsequently cured, and the woman is now well.

Prof. Greenfield said that the operation suggested by *Mr Caird* followed the natural process occasionally seen in intussusception, in which the intussuscepted portion of the bowel sloughed away. In a case from which specimens were shown, a long piece of the small intestines had thus been discharged, and on the death of the patient several months later, it was found almost impossible to determine the exact site of the separation, as there was no stricture, and but little alteration of the mesentery. Two risks were, however, to be faced: one, that of the production of temporary obstruction, as in intussusception, the other the possible formation of a stricture. As to the first, the bowel in that region being probably temporarily paralyzed, it was possible that there was less risk than in intussusception. As to the second, it was certain that a stricture did not necessarily result. On these grounds the operation certainly appeared to merit trial, unless other methods were found which were free from the present risks.

Mr Caird thanked the society for their reception, and in reply to the kindly criticism he had received, wished to lay stress upon the point, that he by no means insisted on the method he advocated

as being of universal application, but that the amount of the gangrenous area, the condition of the adjacent gut, and the state of the patient, must all be taken into consideration in every case. Thus in the first case which proved successful, although the bowel had already given way, he had not only sutured, but returned it, and attempted a radical cure by closing the ring. In the second case, which ultimately died, he left the bowel, which had not yet given way, close to the ring in case it should get ruptured, and made no attempt to close the wound. He was not very apprehensive of the invaginated mesentery forming a spur in the cases where the whole circle of devitalized gut was included, since Madelung had shown that the very interference in this way with the mesentery determined that it would now slough; but even if this did not occur, one could assure it by pinching the mesentery before inclusion, and so effectually determining that it should be cast off. He had also to indicate the ease with which intestinal suture could be performed if we used Dr Cotterill's needles. He begged to thank the various gentlemen who had given him facilities for examining the preparations in their possession or under their care.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LL.—MEETING II.

Wednesday, 11th December 1889.—Dr BERRY HART, *President, in the Chair.*

I. EXHIBITION OF SPECIMENS.

I. *Professor Simpson* exhibited—(1.) A FŒTUS WITH CONVOLUTIONS OF THE UMBILICAL CORD. The fœtus had reached the fourth month of intra-uterine life. The cord passed from the umbilicus to encircle the left arm of the fœtus, which was found lying behind the neck, it then passed round the right arm a little below the shoulder, again it encircled the left arm, and finally it passed round the neck of the fœtus from right to left before passing to its insertion in the placenta. The fœtus was partially macerated. (2.) An EXOMPHALIC FŒTUS which had been sent to him by Dr George M'M. Brown of Hanley, Staffordshire, who had furnished the following notes of the case:—Mrs S., aged 32 years, multipara, married in 1878, and was confined of her seventh child on 23rd November 1889. Menstruation began when she was only 13 years old, was of the 28 day type, had a duration of from four to five days, and was normal in quantity. The date of the last menstruation was 13th March 1889. Four and a half months after this date quickening was first felt, and the movements of the child were felt at intervals from that period during gestation until ten hours before the birth of the child. She had a yellowish-coloured discharge, which came on three months before she became pregnant, and which continued until the birth of the child. From the middle of

gestation she complained of a pain in the left iliac region, which gradually ascended as gestation advanced, until at labour it had reached the lower part of the left abdominal region. This pain was much exaggerated and very severe during labour, so that she could not allow the bed-clothes to rest on the part, and complained of the weight of the clothes making the pain worse. Otherwise her health was good during pregnancy. Since delivery she has been entirely free of the pain. Her previous confinements were all easy, none exceeding six hours in length, although all the children were very large. In the case of this confinement labour began at 3 A.M., but the pains were very slight. The membranes ruptured at 11 A.M. Very profuse flooding set in at one o'clock the same day, and at this time the pain in the left abdominal region was very intense. A midwife was in attendance, but Dr Brown was called in immediately after the flooding set in. A foot and a hand presented, but at the same time there was felt, on further exploration, something which resembled the placenta; but on further examination, and only when the child was partially born, it was found to be the abdominal viscera. The child was delivered by traction on the foot and leg, and although the traction was not excessive, the foot came off. With the exception of a little febrile disturbance, the mother did well. The fetus showed, in addition to the well-marked exomphalic condition, a double hare-lip and cleft, diaphragmatic hernia, and a stunted condition of the right arm, and irregularity in the development of the fingers and toes. Near the lower end of the vertebral column was a small projection, which seemed on palpation to contain the tip of the sacrum, and this projection was attached by bands (probably amniotic) to the margin of the deficiency in the anterior abdominal wall. The child was a male, but the penis was imperfectly developed, and there was no anus. The large intestine was abnormally long and had a wide lumen. (3.) *Professor Simpson* also exhibited (for Dr Robert Stewart) a DIMIDIATE PLACENTA.

II. *Dr Underhill* exhibited—(1.) A piece of a large MUCOUS POLYPUS which had been expelled spontaneously during a monthly illness. The patient had been suffering for a long time from menorrhagia and profuse inter-menstrual leucorrhœa. The piece expelled looked as if it had been cut through with a knife or a wire, but this was not the case, and it was not at all clear to what cause the separation was due. (2.) An OVUM which was thrown off at the sixteenth week, exactly at the time the fourth monthly period would have been on, had the patient not been pregnant.

III. *Dr Brewis* showed—(1.) A FIBROID TUMOUR which he removed from a lady a few days ago. The patient is 45 years of age, and has suffered for about a year from severe pain in the back, especially at the menstrual periods, from menorrhagia, metrorrhagia, and leucorrhœa. Latterly, in addition to these symptoms, she has

had retention of urine, for which she was compelled to call in her medical attendant, who discovered the tumour. The fibroid was an interstitial one, growing in the substance of the posterior lip of the cervix, filling up the pelvic brim and the upper part of the vagina. The surface of the swelling was continuous with the posterior vaginal wall. The anterior lip of the cervix was drawn out, thinned, formed a semicircle on the anterior surface of the swelling, and was felt above the symphysis pubis. The uterine body was enlarged, the sound passing in a distance of 5 inches from the anterior lip of the cervix, and was of fibroid consistence. The tumour was removed by enucleation. A crucial incision was made over its anterior surface; after cutting through cervical tissue of the depth of half-an-inch, the capsule was reached, and the tumour removed bit by bit with scissors. The bed of the tumour was stuffed with cotton wool dipped in colloid styptic, and the vagina was plugged with salicylic wool. The tumour was entirely cervical. (2.) TWO VAGINAL CYSTS removed from a patient whose chief symptoms were dysuria and discomfort in walking. (3.) DISEASED UTERINE APPENDAGES. Both tubes are thickened. One ovary is large, essentially cystic, and shows a well-marked corpus luteum; the other ovary is small and cirrhotic. These ovaries suggest, as Dr Brewis has before pointed out, that cirrhosis is sometimes a later stage of hydrops folliculorum. (4.) DISEASED UTERINE APPENDAGES from a patient who had recurrent attacks of acute peritonitis, and a history of specific infection. Both tubes are greatly thickened, one of them is firmly agglutinated to its ovary by lymph of somewhat recent origin. All the above patients did well.

IV. *Dr G. Owen C. Mackness* read NOTES ON A CASE OF HEART DISEASE COMPLICATING PREGNANCY AND LABOUR, which will appear in a future number of this Journal.

Dr Underhill was much interested in the case so well recorded by *Dr Mackness*. It was important that all the cases should be observed and recorded, so that eventually we might get a more thorough understanding of the relations between heart disease and pregnancy and labour. The most important lesion in *Dr Mackness's* case seemed to be the mitral stenosis. He agreed in the main with *Dr Mackness* in his management of such cases, but he was of opinion that even in cases of this particular lesion the uses of heart tonics, particularly strophanthus, were of the utmost importance, particularly during the course of pregnancy. His experience led most certainly to that conclusion. He thought there was a simpler explanation of the action of nitrite of amyl than that given in the paper. It appeared to him that the dilatation of the arterioles all over the body provided a large space for the reception of the surplus blood which was over-distending the pulmonary vessels.

Professor Simpson was heartily in accord with *Dr Underhill* as to the value of *Dr Mackness's* communication. It not only presented a careful record of a very interesting case, but also a useful summary of the various cardiac lesions and their effects on pregnancy and labour. He (*Prof. Simpson*) thought with *Dr Underhill* that there was no risk in the more or less continuous use of cardiac tonics, and especially of *strophanthus*, during the pregnancy. He had never seen anything but good result from their administration continued throughout the gestation. He was glad that in the case recorded by *Dr Mackness* the result had been so satisfactory, and hoped that *Dr Mackness* would have further opportunities of observing some of those cases which he had shown so much capacity to analyze and record, so that he might further be able to enrich their Transactions.

Dr Wood said the thanks of the Society were due to *Dr Mackness* for the able and highly interesting paper which he had brought before it. *Dr Wood* had a case of mitral stenosis in his own practice about three weeks ago. The patient, aged 28, primipara, had an attack of rheumatic fever twelve years ago, and had suffered from the heart lesion ever since. Cardiac compensation was evidently completely established, and only broke down on her becoming pregnant. She was treated continuously with digitalis for several months before the birth of her child, larger or smaller doses being given according as it was found necessary, and this continuous administration, he had no hesitation in saying, did her a great deal of good. On his visit to her after labour had begun, he found the first stage pretty well advanced, the breathing very much embarrassed, the pulse irregular and very rapid. During a pain, the embarrassed breathing became greatly exaggerated; the pulse, although the vessel could be felt, could not be counted, there being only an irregular quiver; the face became completely cyanosed from the venous engorgement of vessels. He had her at once placed under chloroform, but very soon changed to ether, and found that the pulse was sustained better. He terminated the labour, which was a breech, as rapidly as possible. In the second stage, the patient's condition was considerably worse than the first,—so much so, that he expected she would succumb from cardiac failure. During the labour, he gave her twice two min. of tinct. *strophanth.* hypodermically, and one of *Natville's* granules of digitalin. For several days after her confinement she suffered from cedema of the lungs and pleural cavities, owing, no doubt, to the backward blood-pressure.

Dr Fraser Wright said that *Dr Mackness's* suggestion as to the action of nitrite of amyl was one which had also occurred to himself at the time of recording his case in July last. The difficulty, however, in accepting this explanation lies in the fact that any dilatation of the pulmonary arterioles will be followed by increased pulmonary venous congestion and increased dyspnoea; yet in the case recorded

the dyspnoea was instantly relieved. On the whole, he was still inclined to think that the relief obtained by using this drug is due to dilatation of peripheral systemic arterioles. The fact that bronchitis is often relieved by it, offers no explanation, as here the fact that the peripheral bronchioles are also dilated has also manifestly much to do with the result.

Dr Berry Hart thought *Dr Owen Mackness's* paper a very valuable one, not only from the careful record of the case, but also from his *résumé* on the action of pregnancy on the diseased heart. He hoped *Dr Mackness* would still continue his observations on a subject he was so well qualified to deal with.

Dr Mackness thanked the Society for their kind reception of his paper. As to the use of cardiac tonics during pregnancy, he pointed out that they tended to produce hypertrophy of the heart, which would be followed by subsequent degeneration of the muscular fibres, and hence they increased the harm done to the heart by pregnancy. It was, therefore, advisable to use them only when absolutely necessary, and to discontinue their use as soon as possible. The failure of cardiac tonics was only observed in certain cases of mitral stenosis, and not in all.

V. *Dr Mackness* also read NOTES ON A CASE OF HYDROCEPHALUS WITH MENINGOCELE, which will appear in a future number of this Journal.

Professor Simpson said it was well to have as full a record of such cases as *Dr Mackness* had now brought before them as possible, for they were not of frequent occurrence, although from time to time preparations had been shown to the Society. It was interesting to note that in this, as in some other encephalic malformations, such as anencephaly, and as in spina bifida, there was a marked degree of hydramnios.

Dr Mackness thanked the Society for the reception of his paper, and said that in this case there was no reason during pregnancy to account for the occurrence of the deformity.

VI. *Dr J. W. Ballantyne* read a paper on INTRA-UTERINE RICKETS, which will appear in a future number of this Journal.

The President remarked on the value of the paper.

Part Fourth.

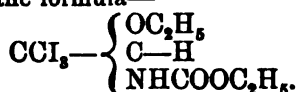
PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

ANOTHER NEW HYPNOTIC.—The last new hypnotic has been named "Somnal" by Radlauer (*Journal de Médecine*, October 20,

1889). It has a formula of $C_7H_{12}Cl_3O_2N$, and is a mixture of alcohol, chloral, and urethan. Its fusion-point is $42^\circ C$. It has been used in doses of 30 grains in the form of a solution sweetened with syrup. It has claimed to exercise no unfavourable action upon the pulse, respiration, or temperature, and by the author is stated to possess the properties of chloral and urethan without possessing their after-effects. It is stated to be unaltered by acids or silver nitrate. It has been claimed by Lutze (*Pharmaceutische Zeitung*, October 26, 1889) that the term "ethylized chloral-urethan is simply a blind, and that the so-called new product is nothing more than chloral-urethan, or ural, under a new name." The statement has, however, evoked a denial from Radlauer (*Pharm. Journ. and Trans.*, November 2, 1889), who affirms that somnal is a product of the direct combination of chloral alcoholate and urethan in a vacuum apparatus, and that its composition is correctly represented by the formula—



As to whether it is any better than the other hypnotics remains to be seen.—*Therapeutic Gazette*, December 16, 1889.

ATROPINE IN ENURESIS.—In the *Archives of Pediatrics* for October 1889, Dr William Perry Watson reports thirty cases of incontinence of urine occurring in children from 15 months to 3 years of age, in nearly all of which cure was produced by the use of sulphate of atropine. The solution was composed of one grain of atropine to an ounce of distilled water, and one drop of this solution was given for each year of the age of the child. It was given at four and seven o'clock in the evening. Some of these cases occurred in Dr Watson's private practice, and others in the public institutions which were under his care.—*Therapeutic Gazette*, December 16, 1889.

THE USE OF SUNFLOWER IN MALARIAL FEVERS.—In the *Bulletin Général de Thérapeutique* for October 15th, 1889, Dr Kazatchkoff calls attention to the fact that in the Caucasus and in the regions of the Volga the inhabitants are in the habit of employing the sunflower (*Helianthus annuus*) in the treatment of malarial fevers. The method of employment seems to be to spread the leaves upon a bed covered with a cloth, to moisten them with warm milk, and then to wrap the patient up in the spread. Perspiration is thereby produced, and the patient is kept in this condition for an hour or two. The same process is repeated every day until the access of the fever has ceased. According to the author, only five or six days are necessary to produce a cure. Infusions of the flowers and parts of the stem are also used internally.—*Therapeutic Gazette*, December 16, 1889.

NAPHTHALIN IN TYPHOID FEVER.—Dr C. Schrwald has made

some bacteriological experiments in Professor Rossbach's laboratory, from which he draws the following conclusions: 1. Naphthalin retards but slowly in the temperature of a room the development of the bacilli of putrefaction of fæces and of typhoid. 2. Naphthalin, finely powdered and well spread, or in solution and well shaken, has its disinfecting power increased. 3. In a temperature of 98° the effect of naphthalin is much more powerful, which makes it highly probable that it is chiefly in the gaseous state that it destroys the germs. 4. Gaseous naphthalin in solution has more effect on aërobic than on an-aërobic bacilli, and more on germs cultivated in a solid medium than on those cultivated in liquid. 5. The conditions for the full effect of naphthalin are much more favourable in the intestines than in the test-glass. 6. Naphthalin added to fæces decreases their germs by about a half; but, administered internally, it first decreases them one-third or even a quarter; after this, however, their number rises again almost to its original figure. 7. Against the bacilli of typhoid stools naphthalin is considered still more effective, and decreases the number of the germs even to one-tenth. 8. The administration of naphthalin should be commenced at the very beginning of typhoid fever. 9. As the calomel affects some of the fæcal bacilli, while others are more readily destroyed by naphthalin, it is best to give, whenever possible, both drugs combined (*Lancet*, September 28, 1889).—*Therapeutic Gazette*, December 16, 1889.

INTERNAL EMPLOYMENT OF RESORCIN IN WHOOPING-COUGH.—A new method of treatment of whooping-cough, recently recommended by Dr Concetti, consists in the internal administration of resorcin, since he has found the method recommended by numerous authorities as to the local application of the drug in children prove, in most cases, totally impracticable. He claims that his results have fulfilled his expectations; and although he does not regard resorcin as an actual specific against whooping-cough, nevertheless he believes that it is a valuable remedy, preferable to any other in the treatment of this affection. The number of cases in which the author has employed resorcin for whooping-cough amounted to forty-eight, among whom was a nursing infant of only 20 days of age. The daily dose varied according to the age, ordinarily $7\frac{1}{2}$ to 22 grains, dissolved in a considerable quantity of water, being given. The doses were given from one to two hours apart, according to the intensity of the case. In thirty-four cases the affection occurred in its typical form, with repeated spasms of coughing, accompanied by the characteristic whoop. In twelve of these treatment was commenced in the catarrhal stage before the characteristic sound appeared. The whoop subsequently appeared, but only for a few days (from six to fifteen). It was by no means severe, and the attacks occurred but seldom. In the other twenty-two cases treatment commenced in the second stage, which in some cases had already lasted a week or

more. In these latter cases the action of resorcin was most evident, since the attacks rapidly diminished both in intensity and frequency, while other methods of treatment, which had hitherto been employed in the same cases, remained absolutely without effect. The author likewise states that the duration of the disease was positively shortened, some cases lasting but one week, others two, or more seldom three weeks—in the latter cases leaving a light catarrh, which readily yielded to ordinary remedies. In the other fourteen cases the characteristic whoop was absent, and here also treatment was commenced in the catarrhal stage; and the author believes that the development of whooping-cough was prevented. Among these cases was a woman, and, as is well known, the whoop is frequently absent, even in indisputable cases of whooping-cough, in adults. Further, the author claims that in numerous cases he thinks he is able to conclude that of nineteen cases in which the treatment was commenced in the catarrhal stage, that it was aborted in six, and in thirteen rendered mild and of short duration. Dr Concetti suggests that perhaps the results obtained by Moncorvo and others from the local application of resorcin in whooping-cough was to be attributed to the amount of the drug which had been swallowed (*Wiener Medizinische Blätter*, 5th September 1889).—*Therapeutic Gazette*, 16th December 1889.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

ON THE ETIOLOGY AND DIAGNOSIS OF MALIGNANT GROWTHS, PARTICULARLY OF THE TONGUE AND LIPS.—From an interesting paper by Von Esmarch, for which we are indebted to Professor Annandale, we extract the following; but the whole is worthy of careful study. It is comforting to find such an authority declare that the days are over in which a clinical teacher must impress his pupils with a sense of his infallibility. No clinical teacher now hesitates to tell his pupils that he does not know what is the disease in the case under consideration. Von Esmarch relates some cases of ulcerating syphilomata of the lips, tongue, and other parts, which were mistaken for cancer, and removed by operation. In particular, he mentions one instance, in which an unfortunate man had first the glans, then the penis, finally the scrotum and testes cut off, and was eventually rapidly cured of the ulcers on the skin, which had recurred after each operation, by a course of mercury. He thinks that many examples of sarcoma and fibroma ought with more propriety to be regarded as syphiloma, a term which he prefers to gumma, as more accurately descriptive. There are tumours of the tongue, lips, epiglottis, and mamma, which consist of masses of true tubercle, and which may reach a considerable

size without breaking down. It is true that most of those so affected suffer from tubercular disease of some other organs, especially of the lungs. This is not, however, invariable. Tuberculoma, as he proposes to call this, is sometimes primary. A man came to his clinic who had suffered for a year from an ulcerating growth of the tip of the tongue. Esmarch regarded it as cancerous, and cut off a considerable part of the organ, including the ulcer. A microscopic examination by Colberg showed it to have been an adenoma of the lingual glands. A careful drawing was made before the operation, and this, twenty years after, enabled Esmarch to identify a similar case. Actino-mycosis is a complaint recognised so comparatively recently, that it is not astonishing to learn that tumours due to it have been considered as cancer of the tongue and sarcoma of the abdominal wall, and dealt with accordingly. Cysts of the jaws and mamma, and inflammatory spontaneous fractures of the upper end of the femur, have respectively been thought to be carcinoma, sarcoma, and osteo-sarcoma. To aid the diagnosis of such cases, he strongly recommends the examination by the microscope of small portions of tissue obtained by a species of harpooning. He figures some ingenious instruments which he has devised for obtaining these fragments of tissue. In such cases, as after repeated anatomical investigation give only a negative result (as only granulation tissue), the view is confirmed that the complaint has a specific origin; and a trial of anti-syphilitic remedies will establish the diagnosis. If a syphiloma is excised under the supposition that it is cancer, it very often, if not always, recurs in a short time. The glands enlarge, general marasmus sets in—in short, all the symptoms of malignancy—and a fatal issue follows. In etiology he lays much stress on heredity, though not excluding other causes. The paper is illustrated by a number of excellent coloured drawings, and by an extensive series of references to contemporary literature.—*Von Langenbeck's Archiv*, Bd. xxxix., Heft 1.

THE SYPHILOMA OF THE VULVA.—The term syphiloma has been restricted to mean the deeper gummatous changes which occur in the later tertiary periods of syphilis. Dr Hyde has made a valuable contribution to our knowledge of these in so far as they affect the vulva. It is well that he has done so, since these have been frequently misunderstood, and their signification misinterpreted even by those well skilled in female complaints. The syphiloma, when first recognised, is usually a deep-set, well or ill defined, firm, bean to nut sized infiltration of the submucous or subcutaneous tissue of one labium majus. There is commonly a history of insidious development after the date of its first observation, rarely of pain or tenderness. Occasionally there has been moderate or severe genital pruritus. Other parts besides the labium majus may be the primary site. It is particularly necessary to note that in the

majority of cases the inguinal glands are quite unaffected; that discharges from the bladder or uterus, though these may aggravate the lesions in the vulva, have no essential connexion with these; that ulceration has always been preceded by the changes mentioned, and that time is of the essence of the diagnosis. The neoplasm commonly first develops at a given point in the external parts, and does not reach this by a process of extension either from within or from without. The extension of the primary gumma is generally downwards to the perineum rather than upwards over the pubes, possibly from the irritating effects of the urine in flowing over the parts. Thus all the external genitals may in course of time be included in the infiltration, extensive ulceration may ensue, leading to great and permanent loss of substance. The subjects of this form of disease are, almost without exception, women between the second and fifth decades of life, by far the larger number suffering between the twentieth and thirtieth years. They may be pallid and worn, or apparently in good general health, and are usually, as a rule, entirely free from any other evidences of syphilitic infection. Sometimes there are firm, fleshy tags, rather broadly attached, surrounding the anus. When such are present, defecation is very painful and accompanied with loss of blood. Micturition may be painful when a vestibular ulceration encroaches on the urethral lips or channel. Yet with these exceptions subjective symptoms are rare. Few cases have been recognised as a late manifestation of inherited disease. There has been great hesitation on the part of gynaecologists to accept the diagnosis of syphilis for the lesions in question. This is due in part to the failure of the gumma to conform to the common preconceptions relative to other genital manifestations of the same disease. Not only is the syphiloma of far rarer occurrence, it also does not, in external features and career, resemble chancres and so-called secondary lesions of syphilis having a vulvar site; nor does it, as do these, yield speedily to the treatment effective in so many syphilitic phenomena. Many seem unconscious of the fact, that a woman with a gummatous lesion of the vulva may not only betray no other symptom of syphilis, but may exhibit all the other evidences of sound health. It may, indeed, be asserted that women far oftener than men exhibit single syphilitic symptoms. What, then, have these vulvar lesions due to syphilis been regarded? First and most conspicuously as lupus vulgaris. Yet all dermatological experience bears out the statement made by Hebra, that lupus is never of primary occurrence in this situation, its lesions, when here present, having invariably invaded the genital organs by extension from the thigh. A disease has, in fact, been decided to be lupus vulgaris, none of whose symptoms are enumerated under the title of lupus by any dermatological writer of repute; and most of whose symptoms point conclusively to quite another disease. Some have looked on such cases as composite, a union of lupus and syphilis. Yet in connexion with this assumed hybridism

a patient who suffers from psoriasis, eczema, or even lupus, and contracts syphilis, loses for a time the psoriasis or eczema, while the lupus does not modify the syphilitic manifestations in the least. All cases, however, which have been described as esthiomenus of the vulva are not necessarily syphilitic. Some are examples of labial epithelioma, some of rapidly fatal sarcoma. Cases of tuberculosis of the vulva are exceedingly rare. One is recorded by Chiari, but there was generalized tuberculosis elsewhere. True elephantiasis of the vulva, though rare, must be distinguished from the syphiloma, but some such were actually due to syphilis. In treatment, besides iodine, mercury, and tonics, Hyde specially praises daily skilful local dressing of the affected parts by qualified persons. Ulcerations are to be daily cleansed, and wiped thoroughly with solutions of the nitrate of silver in varying strengths, and then dusted with iodoform, or what is decidedly preferable for the majority, one part of hydronaphtol to 50 or 100 of Fuller's earth. One of the author's patients illustrated well the need of persistent faithful dressing of the affected parts. The woman had visited the springs of Arkansas without result, save to secure an opinion that she was suffering from lupus of the vulva. On reaching home she was placed in a hospital, and subjected to treatment with proper dressings by a skilled nurse. As soon as ever a moderate improvement was realized, she insisted on returning to her husband, with whom sexual relations were, as usual in such cases, promptly re-established. She then speedily relapsed into nearly her former condition, when her husband committed a crime against the State, which led him to become a fugitive from justice. Abandoned thus, the woman was finally placed in the care of an attendant, who skilfully dressed the part every day for two months. At the end of that time the change was marvellous, the patient being practically restored to health.—*Journal of Cutaneous and Genito-Urinary Diseases*, April and May, 1889.

PERSISTENT VITALITY OF FAVUS.—Lailier cites a case in which a man, aged 40, who had been free from favus for 25 years, when exhausted by the hardships of the siege of Paris, suffered from a relapse without being exposed to a fresh source of contagion. In another case, a woman with favus occupied a bed in his ward for some time. On her discharge some article of bedding must have been insufficiently disinfected, for, two or three months later, the patient who succeeded her in the occupation of the bed developed favus.—*Annales de Dermatologie et de Syphiligraphie*, Janvier 1889.

[These remarks of M. Lailier are borne out by some observations of our own. A boy, who had extensive favus which had resisted treatment by resorcin, was subjected to the method recommended by Schuster, and which was described in this Journal in the December Periscope. His head was washed daily and fumigated with nascent sulphurous acid gas, generated in a closed chamber

fitted accurately to his head, for half an hour at a time. At the expiry of eight weeks, hairs extracted from various parts of the head were found to be extensively diseased. In fact, no progress had been made. This is interesting as regards favus, but it opens up the larger question, how far fumigation with sulphur when burned in a closed chamber is really disinfectant at all? We have for a long time had doubts of its efficacy, and this crucial experiment in the case of favus has still further weakened our faith.—W. A. J.]

TAR IN THE TREATMENT OF ECZEMA.—Mr Jonathan Hutchinson says that were he required to name one remedy only for eczema, he would choose tar; if allowed to choose two, tar and lead; and if three, tar, lead, and mercury. Yet for a disease which presents so many phases and varieties both in kind and stage as does eczema, it may seem almost absurd to speak of single remedies. The chief reason which prevents tar from holding its proper place in the treatment of eczema is that it is commonly used too strong. If weak enough and used freely enough, tar solutions will, in his experience, almost invariably cure eczema. While he admits the value of tar-water and carbolic acid, he regards as most certain and convenient the solution of coal-tar known as liquor carbonis detergens. A teaspoonful to a pint of water is a common strength, but he often prescribes it in a much more dilute form. It should be so weak that it does not cause smarting, and it should then be employed like water. The parts affected should be bathed with it, and rags soaked in it should be laid over them and frequently rewetted from the outside. On no account should oiled silk be used—it soddens the part and spreads the eczema. Eczematous inflammation is usually, according to his creed, a local and self-infecting disorder. It begins, in a predisposed and irritable skin, by some local excitement, and it prospers under the laws of self-contagion. In most cases the state of the blood has little to do with it. It cannot usually be cured by internal remedies alone, whereas, in nine cases out of ten it may be cured by local treatment without any alteration in the patient's diet or any use of internal drugs. In eczema he, however, recommends the avoidance of sugar, fruit, and milk, very often salines should be given, and, in acute cases, tartarized antimony. Weak tar lotions may be used for eczema without much regard to stage. In a few cases, however, of very acute inflammation it is preferable to use a lead lotion for a few days, and to add tar only when the congestion is a little abated. The cases are, however, very few in which he omits the tar, even at the beginning. Very often, indeed, his lotion consists of liquor carbonis and liquor diacetatis in equal proportions, diluted as above directed. Arsenic rarely does any good in eczema, and often irritates. Weak sulphur baths, as at Harrogate and Aix-la-Chapelle, often cure chronic cases, chiefly those of dry eczema, but

severe cases have been known not only to remain uncured, but have apparently been made worse at both places.—*Archives of Surgery*, No. 2, 1889.

PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By FRANCIS CADELL, F.R.C.S. Ed.

AN INTERESTING SUIT FOR NULLITY OF MARRIAGE.—This case was heard at Sydney on 13th March 1889 before Mr Justice Windeyer, and the following is an abstract of some of the remarks made by his Honour in giving judgment:—This was a suit for nullity of marriage, instituted by the husband against the wife, on the ground of her alleged incurable malformation and bodily defect, rendering consummation of the marriage impossible. It appeared from the evidence that the parties were married on 28th February 1886, and that after their marriage they went on a wedding tour, which lasted about three weeks. Since then up to January 1888, when the respondent left her husband for the purpose of being treated medically by Dr Chambers, they have lived together, except during occasional absences of her husband on business. The petitioner stated that he had made repeated efforts to have connexion with the respondent, without success. The cause of this failure lay entirely with the respondent, and from no want of sexual power or desire on the part of the petitioner. The petitioner had been compelled to bring his suit on account of nervous illness and exhaustion, brought on by ungratified sexual desire. Two or three years previous to her marriage, the respondent, then about 20 years old, was taken by her mother to consult a doctor, as she never had any monthly courses. The doctor stated that he could find no ovaries. After her marriage the respondent was still without her courses. Whenever her husband attempted to have connexion with her, she showed great aversion to the act, and pushed him away and shrunk from him, thus preventing connexion. The petitioner brought his wife to Dr Fiaschi, who found that the vagina was very small, the uterus infantile, and no ovaries. There was further a physical contraction of the vagina, vaginismus, which rendered coitus impossible. She then submitted to an operation by Dr Chambers, by which the vagina was enlarged, so that the parties might, to use his expression, "live together in some sort of comfort." The evidence showed that whatever alteration in the size of the respondent's vagina had been effected by Dr Chambers's operation, she still evinced that repugnance to sexual intercourse which is characteristic of vaginismus. So far from there being any evidence that the physical symptoms of vaginismus had disappeared, it would seem that there was superadded to physical repulsion an aversion to the very presence of her husband, as she said, "I will never live with

you again." It was true that to entitle the petitioner to a decree the impediment in the way of intercourse must be physical, and must not simply arise from the wilful refusal of the wife to submit to her husband's embraces; but in this case he was satisfied that the refusal of the respondent to consort with her husband as his wife arose from her continuing vaginismus. The judge pronounced the marriage null and void.

THE USE OF SALICYLIC ACID OR THE SALICYLATES IN GONORRHOEA AND GLEET.—"Having read Professor Latham's (of Downing College, Cambridge) Croonian Lectures, 1886, and it having been suggested to me by Dr J. P. Wills, I tried sodium salicylate in a case of obstinate gleet, which had resisted nitrate of silver, (gr. xx. ad ʒj.) as an injection, and as a urethral ointment thallin ointment and sandal-wood oil—with complete success. Encouraged by the good results then obtained I tried it in a case of gonorrhœa with left epididymitis and orchitis, the notes of which I append:—J. D., married, aged 30, came to me on October 10th with gonorrhœa and commencing left epididymitis, also glands enlarged and tender in left groin. *October 12.*—The left testicle was now slightly inflamed. *October 19.*—I strapped the testicle. *October 24.*—All hardening, except one small spot in globus major of left epididymis, had disappeared, and the gonorrhœa was cured. The case was treated with an injection of potassium permanganate (gr. x. ad ʒj.), and a mixture containing sodium salicylate (gr. xv. ad ʒj.) There was no vomiting, very little tenderness, and the organ was never very much enlarged" (Edward H. Ryan-Tenison, A.A. Oxon., M.R.C.S. Eng.)—*Brit. Med. Jour.*, Nov. 16, 1889.

CARBOLIC ACID AND OIL OF PEPPERMINT IN GONORRHOEA, AND SALICYLIC ACID IN PUERPERAL PYÆMIA.—"Somewhat à propos to the allusion to carbolic acid internally by Dr Mackay in the *Journal* of October 26th, I am desirous of stating that I have occasionally seen great benefit ensue when I prescribed carbolic acid and oil of peppermint internally in gonorrhœa, even in cases where 'specifics' failed. Carbolic acid is quickly and entirely eliminated by the urinary organs, and oil of peppermint is, like it, a powerful antiseptic. In other cases, but less often, salicylic acid or the salicylates appear to have a marked action. In two cases of puerperal pyæmia, where abscesses formed extensively all over the body, I was entirely pleased with the effects of large doses of salicylic acid. I am aware that peppermint has been long used in mixtures for gonorrhœa, but evidently only as a means of disguising the taste of nauseous drugs" (James MacMunn).—*Brit. Med. Jour.*, Nov. 16, 1889.

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

DR M'COSH of New York recommends that, in cases of strangulated hernia with gangrenous bowel, the bowel should be resected. He has collected 115 cases, which have been published, in which this procedure has been adopted. Of these, fifty-eight died and fifty-seven recovered. He admits that this proportion of recoveries is probably too high, as unsuccessful operations are not so likely to be reported as the successful ones. He considers that the method of leaving Nature to separate the bowel is the most dangerous. In some cases he would form an artificial anus, and close that by a second operation if it did not close naturally.—*New York Med. Jour.*

M. GUELPA looks upon tetanus as an infectious disease; it is due to a microbe; the symptoms are the result of a poisonous substance produced by these microbes; the organisms are (at first at any rate) limited to the region of the wound; treatment should consist in destruction of the microbes, elimination of their products, and calming of the nervous system.—*Amer. Jour. of Med. Sciences.*

DR AUGUSTO DUCREY considers that—1. Syphilitic reinfection is possible. 2. It may occur even when tertiary symptoms of previous infection are present. 3. Second attack is the same as an ordinary one, and may even be more severe than the first. 4. Reinfection is therefore no proof of a cure. 5. The possibility of reinfection does not prove that syphilis is curable.—*Amer. Jour. of Med. Sciences.*

MR HOWARD MARSH, F.R.C.S., combats the views recently advanced in favour of early excision of the hip-joint. He brings forward statistics to prove that results are much better and more satisfactory in every way when excision is avoided. He advocates the employment of rest and extension in bed. When suppuration occurs he merely opens and drains the abscesses. He considers that his results support the opinion that tubercular affections are curable, and do not require to be treated by severe measures on the supposition that the disease resembles malignant affections. He does not conceal the fact, however, that this method of treatment requires years instead of months to bring about a satisfactory result.—*Lancet.*

DR A. B. JUDSON of New York exhibited two cases of hip disease to the New York Academy of Medicine, in which abscesses had disappeared, and a good recovery resulted. In both cases treatment was conducted during a period of years. Dr Judson relies on three aids—rest, liberal diet, and opium. He does not believe that incision does any good.—*New York Med. Jour.*

SZENES, in the *Deutsches Archiv. für klin. Med.*, says that

"Suppuration of the middle ear may cause death in the following ways: (1) By causing caries of the temporal bone, and thereby setting up meningitis, abscess of the brain, septic phlebitis, thrombosis, embolism, and hæmorrhage; (2) by septic phlebitis and absorption of septic matter through the lymphatics, giving rise to meningitis, abscess of the brain, thrombosis of venous sinuses, and general pyæmia; (3) by tuberculosis.

"Metastatic inflammations may follow either acute or chronic suppuration of the middle ear. They are, however, more frequently associated with chronic otitis media. Metastatic complications occur in patients of all ages. They are most often found in the lungs, but the pericardium, the joints, the liver, the pleuræ, the periosteum, the bones, the peritoneum, the bladder, the lymphatic glands, the kidneys, the spleen, and the brain, may be affected. The metastatic inflammation culminates in an abscess. *In the brain the abscess may be in the side opposite to the diseased ear, and there may be more than one abscess.*"—*Med. Chronicle.*

DR ROBERT ABBE of New York has published a case in which he successfully employed Dr Nicholas Senn's bone plates for the establishment of a fistulous opening between the bowel above and the bowel below a malignant stricture of the colon at the hepatic flexure. The patient survived the operation in comparative comfort for three months. At his death the communication between the ascending and transverse colon was found well established. Dr Abbe suggests that catgut rings may be used instead of Senn's bone plates. These rings can be quickly made, and of any size. To prove the utility of these rings he performed two experiments on a dog. They were quite successful. Dr Abbe's paper is well worth reading, especially the history of his patient.—*New York Med. Journ.*, also *Philadelphia Med. News.*

PROFESSOR OGSTON of Aberdeen advises, in cases of compound fracture and gunshot injuries that do not urgently require amputation, thorough exploration and drainage of all cavities under the skin and between the muscles, frequent and thorough irrigation of these cavities, and free and liberal removal of all bone that interferes with drainage or proper apposition. He recommends the chisel as the best means of removing rough or riding ends of fractured bones. The subcutaneous and intermuscular cavities referred to are produced, he says, by forcible injection of fluids at the time of injury, and also by the different expansibility of the various structures and tissues.—*Med. Chronicle.*

HÆMORRHAGE FROM LARGE VENOUS TRUNKS.—Dr Rockwell of Brooklyn recommends—(1) compression; (2) lateral occlusion by ligature, suture, or forcipressure; (3) ligature of the vein above and below the wound, with or without prophylactic ligation of corresponding artery. He does not mention elevation of the limb

as a means of diminishing the arterial flow into it. Results in the case of the femoral vein have been so unsatisfactory that it is difficult to say what method of treatment is best. In regard to the axillary region, "lateral occlusion" has been so successful that it should always be tried. In the cervical region double ligature of the wounded vein should be unhesitatingly performed, for the collateral circulation is so perfect in every way that the occlusion of the internal jugular (or even both of them) seems to have no deleterious effects whatever.—*Brooklyn Med. Journal*.

RADICAL CURE OF HYDROCELE.—Mr Southam, of Manchester, reports three cases in which he successfully removed the "parietal portion of the tunica vaginalis." In this way reproduction of the hydrocele is prevented. He recommends that the patients selected for this operation should be healthy and not above 60. He employs dry dressing, with firm pressure and elevation of the scrotum.—*Lancet*, 26th October 1889.

RABBIT BONE FOR UNUNITED FRACTURE.—Mr M'Gill, of Leeds, reports a case of ununited fracture of the radius in which he scraped the ends of the fragments, and filled the space left (about $\frac{3}{4}$ in.) with small fragments of bone from a young rabbit. Immediate union took place of the wound. The patient was shown before the British Medical Association five months after the operation, "when the injured arm was as useful as the other."—*Lancet*, 26th October 1889.

ANTITUBERCULAR POWER OF IODOFORM.—Dr Lewis S. Pilcher, of Brooklyn, had a patient, a child, with several strumous ulcers on the limbs. Two of these were excised, and healed at once. The two remaining ulcers were treated, the one with bismuth dusting, the other with iodoform. The latter healed before the former, which required a second scraping. "A most favourable influence upon the tubercular process was exerted by the iodoform applications."—*Annals of Surgery*, September 1889.

NEW OPERATION FOR EXCISION OF UPPER JAW.—Dr Heusner, of Barmen, recommends an incision along the lower margin of the orbit. By this wound, and by the mouth, the soft parts can be easily separated from the bone, the infraorbital artery and nerve being carefully preserved. The osseous connexions are then severed by a key-hole or chain saw, and the operation completed in the usual manner. The bone is removed by the mouth. The subsequent treatment of the wound is easily accomplished. There is very little deformity left; for the incision, if carefully sewed up, will heal by the first intention, and leave very little scar.—*Deutsche Med. Wochen.*

LIGATURE OF THE VERTEBRAL ARTERY FOR EPILEPSY.—There

have been forty-five cases published by Alexander, Sidney Jones, Bernays, and Baracz. Favourable results have followed in about half. No deaths seem to have been recorded. The operation is tedious. Damage to the sympathetic has been noticed in most cases, the pupil being contracted on the side operated on.—*Wiener Med. Wochenschrift*, Nos. 7-9, 1889.

ARTIFICIAL TONGUE.—Dr Poucet, of Lyons, has invented an artificial tongue for improving articulation in cases where that organ has been extirpated. The apparatus consists of a "pocket" of soft rubber containing fluid, and jointed on to a plate, which is fixed to the lower teeth. "A patient wearing this apparatus can eat and speak quite satisfactorily, and there is no dribbling of saliva, the latter being swallowed as in health."—*Provence Med.*

ENUCLEATION of diseased portions of the thyroid is recommended by Prof. Bosc, of Gresen, acting on the discovery of Socin that in many cases the disease is limited to "nodular foci," which can be "shelled out" without removing the whole gland. An incision is made over the most prominent part of the tumour. The capsule is carefully laid bare and separated from the overlying structure. The tumour (in its capsule) is then drawn out through the wound and compressed so as to empty it of blood, and then an elastic ligature passed round it. The capsule is then incised, and the diseased nodules enucleated where found, the normal tissue of the gland being left. The shelling out can be done with the finger. "As the nodules are enucleated, the pressure of the elastic tourniquet crowds forward the diseased portions more and more." On removal of the elastic band there is only slight hæmorrhage, and "in no case is tamponade of the wound required." This operation can be employed for cystic growths also.—*Centbl. f. Chirg.*, No. 1, 1889.

CAUSE OF SUDDEN DEATH AFTER EXTENSIVE BURNS.—E. Fraenkel, of Hamburg, records the post-mortem appearances found in three cases which were fatal, fifteen, eighteen, and twenty-four hours after severe burns. The urinary tubules were blocked up with cylinders of hæmoglobin, and there were extensive degenerative changes in the kidney. Similar changes were found in the liver and spleen.—*Deutsche Med. Wochenschrift*, No. 2, 1889.

VERTICAL (?) FRACTURE OF THE PATELLA.—Dr Pavel S. Geier, of Kaluga (Russia), says that a man trying to lift a heavy sack, his knee being semiflexed, suddenly felt acute pain, and was unable to extend the limb. The man was seen by Dr Geier two months after the accident, when a very slightly oblique fracture was seen dividing the patella into two almost vertical and nearly equal halves. The fragments were separated, one-half being drawn upwards. The case is all the more remarkable as having been the result evidently of muscular contraction. There is no mention of treatment or result.—*Proceedings of Kaluga Med. Soc.*

TREATMENT OF GOITRE BY LIGATION OF AFFERENT ARTERIES.—Prof. Rydygier, of Cracow, reports twelve cases in which the arteries were tied and the thyroid left. Several cases of Billroth's are referred to. Billroth and Rydygier both speak of the difficulty of getting the vessels to stand a ligature. They tore frequently. No reference is made to Watson's researches and method of ligaturing outside the capsule of the thyroid, published fifteen years ago. — *Wien. Med. Wochr.*, Nos. 49 and 50.

TREATMENT OF CONGENITAL DISLOCATION OF HIP.—Emil Martin, of Halle, recommends extension during the night only, as advised by Volkmann. Extension must be strong enough to make the affected limb seem the longer. "Over correction" of the deformity is necessary before treatment is stopped, and this may require several years to accomplish. During the day the child is encouraged to go about and exercise the limb. Massage is also employed. — *Deutsche Med. Woch.*, No. 16.

PERISCOPE OF PUBLIC HEALTH.

By HARVEY LITTLEJOHN, M.A., M.B., B.Sc. (Publ. Health).

MORTALITY AMONGST NURSES FROM TUBERCLE.—In the *Zeitschrift für Hygiene*, Part vi., 1889, Dr George Cornet, of Berlin, gives the results of an extended inquiry into the causes of mortality amongst those engaged in nursing the sick. He was afforded every facility in carrying out this research by the Government, and thus was able to command material which unaided he could never have availed himself of. In order to be able to follow out each case of illness, and in order to exclude, so far as possible, every source of fallacy, he discarded the statistics of all nursing institutions, hospitals, etc., where the nurses had adopted nursing merely as a means of livelihood, and were not bound to continue it longer than they wished, which, of course, in the cases of tuberculosis and diseases lasting a number of years, would have tended to render any statistics comparatively worthless. Dr Cornet, therefore, founds his results on the statistics of convents whose members are under life-long vows of devotion to nursing, and whose lives, in most cases, are from early youth upwards under observation. Of these convents the statistics of 38, representing over a period of 25 years, a yearly average of 4028·80 persons, with a total mortality of 2099, were available. Out of this total of 2099 deaths from all causes, no fewer than 1320, or 62·88 per cent., are ascribed as due to tuberculosis; the next most fatal disease being typhus (including typhoid), with 177 deaths, or 8·23 per cent. Deaths from tuberculosis gradually increase from the fifteenth year up to the fortieth, far exceeding those from all causes combined; thus for the ages between 30 and 40 there are 525 deaths from tuberculosis, and from all other causes 186. After this the deaths from tuberculosis

gradually decrease until, after the fiftieth year, they are less than half those occurring from all other causes combined. A table is given comparing the mortality amongst nurses with that of the general population at different ages and from various diseases. Thus, whereas in every 10,000 people between 25 and 30 only 36·09 die from tuberculosis, in every 10,000 nurses between the same ages 176·22 die of that disease; and at every age under 60 years the mortality amongst nurses from tuberculosis is enormously higher than amongst the general population. This excessive mortality cannot be ascribed to these religious bodies recruiting their numbers from weak and debilitated people, as the opposite is the case, all being strong young women or men, from 18 up to 30 years of age when they enter on their duties. Good health, as attested to by a medical man, is almost an essential condition of their admittance; so that, on the whole, they constitute at the commencement of their duties a more healthy population than is to be found on an average in the whole State. Dr Cornet is clearly of opinion that this greatly increased mortality is to be accounted for by the much greater exposure of nurses to infection from tubercle bacilli. He has found bacilli, and these of a most active type, on the walls and bedsteads of wards in no less than five out of seven hospitals examined, where three-fourths, he says, of all nurses become tuberculous. How many more of those lying in beds adjacent to sufferers from phthisis must be infected! Tuberculosis is most commonly caused by the inhalation of the bacilli. The bacilli are almost without exception inhaled from the dried sputum of people suffering from consumption; if such sputum be kept moist it is quite harmless. It is not sufficient merely to give patients spittoons, the strictest supervision must be exercised over the handkerchiefs of such patients, and spitting on the floor must be prevented. In this way it is possible to keep absolutely free from tubercle bacilli not only single rooms, but also whole wards filled with phthisical patients.

MICRO-ORGANISMS IN THE AIR OF HOSPITALS.—In the twentieth Annual Report of the State Board of Health of Massachusetts there is a very interesting and instructive paper by Mr G. R. Tucker on the number and distribution of micro-organisms in the air of Boston City Hospital. He made a large number of experiments under very various conditions, and with a specially devised apparatus instead of the more commonly used Hesse tube. His results are interesting and novel, and may be summarized as follows:—

1. Bacteria are more abundant in the medical than in surgical pavilions.
2. Bacteria in both surgical and medical wards are more abundant in the mornings than during the afternoon.
3. In the afternoon micro-organisms are most abundant in the upper wards of each pavilion.
4. Female wards contain fewer micro-organisms than male wards.

He also found that in the Infectious wards which are new and have a cubic space of 1200 cubic feet per patient,

and also a system of ventilation supplying each patient with 6000 cubic feet of fresh, warm air per hour, the number of bacteria present was much below that in the other general wards. He likewise demonstrates, by means of hourly experiments in the wards, that the morning sweeping and general tidying in preparation for the official visit has a very great effect on the number of micro-organisms present in the air during that period, and that almost immediately after the ward has settled down for the day into a comparative state of quietness the number of micro-organisms decreases, and remains low till the following morning.

ANTISEPTIC PROPERTY OF COFFEE.—It has been lately shown by Lüderitz, from a series of experiments conducted by him in the Berlin Institute of Hygiene, that coffee as a drink (infusion) possesses very decided antiseptic properties. Several different forms of bacteria were experimented on, and their growth was found in all cases to be interfered with by the addition of a small quantity of coffee infusion to nutrient gelatine. In pure infusion the bacteria were rapidly destroyed. The question as to what constituents exercise the antiseptic action cannot yet be answered. The caffeine is certainly only active to a slight degree, the tannic acid to a greater extent, but probably of greatest importance are substances which are formed during roasting. It is interesting to note that a cup of coffee left lying in a room remains almost free from micro-organisms for a week or more.—*Berlin. Klin. Woch.*

DISINFECTION OF DWELLINGS BY SULPHUR DIOXIDE.—Dr Edson, Chief Inspector, Health Department, City of New York, in a paper read before the American Public Health Society, gives very valuable testimony as to his experience of SO_2 in the disinfection of dwellings. He says,—“I have had in my official position a wide experience with SO_2 as a disinfectant, and I have been led to the conclusion that it is a thorough and an almost perfect destroyer of the infective matter of the acute exanthemata and diphtheria.” In proof of this reference is made to the statistics of the various infectious diseases in New York, and the number of secondary cases which, after disinfection of the room in which a patient had lain, could be traced to infection from that room. To take one example: In 1887 there were 321 cases of small-pox in 227 houses; 82 of these cases were contracted from exposure to some of the 239 original cases, nearly all of which were traced in their turn to direct exposure to other cases. Nine cases could not be traced to their cause, but were probably due to some mild case travelling about and spreading the disease. Not one single case of the disease was developed from the clothing or from the rooms in which any of these cases had been, and from which they were removed to the small-pox hospital. And so, also, in regard to scarlet fever the most satisfactory results were obtained. The method of disinfection is to light the sulphur, in the proportion of 3 lbs. to 1000 cubic

feet air space, by means of 3 or 4 oz. of alcohol, which has the great advantage of adding to the moisture of the atmosphere in the room. The above amount of alcohol will develop about fifty quarts of steam, thus aiding the power of the sulphur very considerably.—*Medical Record*.

MORTALITY AMONG ARTIFICIALLY FED INFANTS.—Dr Bertillon recently made some statistics, prepared by Dr Richard Boeckh, the subject of a report to the Société de Médecine Publique. They demonstrate that the mortality of infants reared on the bottle is six or seven times greater (all other things being equal) than that of infants nourished on the breast. The statistics prove also that neither the age of the infants, nor their legitimate or illegitimate parentage, nor the social condition of their parents, is able to explain the difference in the mortality of infants brought up on the breast and those fed on the bottle. The very considerable difference in the mortality found between the two categories of infants (7 and 45 per 1000 living in each category) is wholly due to the difference in alimentation. Although the mortality among illegitimate infants in Berlin is generally double that among legitimate, yet this is quite consistent, as the illegitimate children are more often than the legitimate fed on the bottle.—*Revue d'Hygiène Thérapeutique*.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The following Candidates passed their final examination for the triple qualification in Medicine and Surgery at the sittings held on 24th January 1890, and were admitted L.R.C.P. & S. Ed., and L.F.P. & S. Glasg.:—James Stanton Cluff, Cookstown; Richard Henry Beardsley, Grange-over-Sands; Lewis Leon James, Edinburgh; James Stobo, Uddingston; Denis Doolan, Edinburgh; George Gordon Stuart, Birmingham; James Hurley, Ennis-kean, Co. Cork; Donald Joseph Macaulay, Halifax; Frederic Hamilton Lazenby, Leeds; Fred. Hall, Bury; Matthew L. Mackintosh, Crowborough; John Kerr, Bothwell; Walter J. H. Cumming, Edinburgh; John Alfred Fox, Penzance; William P. Ryall, London; Albert Edward Wynne, Dublin; Adam C. Burrows, Carrickfergus; Stella Mary Taylor, London; Charles H. Sykes, Leeds; Muragaser Sinnetamby, Edinburgh; Augustus H. Dubourg, London; Charles Jones, Edinburgh; Wm. R. Main, Edinburgh; Louisa Rosa Cooke, Chiswick, W.; James H. S. Grant, Sheerness; Samuel H. Davies, Edinburgh; Hanson C. Evison, Lancaster; Hugh Shaw, Enniscorthy; John A. Jones, Dolgelly; Richard S. Jaques, Sheffield; John R. Lloyd-Jones, Montgomery; Wm. V. Sinclair, Edinburgh; Robert T. Fallon, London; James Smith, Edinburgh; Alexander K. Melville, Edinburgh; George M. Grieve, Edinburgh; Wilmot E. Leembuggen, Edinburgh; Alfred J. Davies, Edinburgh; Michael A. Bamby, Edinburgh; James F. Curry, Glui, Co. Limerick; David F. Todd, Edinburgh; Thomas Davies, Edinburgh; Alfred W. Crooks, Edinburgh; James K. Troup, Edinburgh; Wm. R. M'Master, Omagh.

THE INFLUENCE OF CLIMATE AND SEASON UPON THE MANIFESTATION OF NORMAL AND ABNORMAL NERVOUS ACTIVITY (by

W. D. Platt, M.D., of Baltimore).—This article, in which the writer deals specially with chorea, infantile paralysis, suicides, and neurasthenia, is interesting in itself, and interesting also as indicative of what is becoming every day more and more realized, viz., the fact that crime, insanity, and disease are all the result of something abnormal in the relation of the individual to its environment, and consequently that they all follow the same laws as regards age, sex, heredity, season, climate, etc.—*Philadelphia Medical News*, Aug. 10, 1889.

HYDRONEPHROSIS AND RENAL ATROPHY, ESPECIALLY AS RESULTING FROM FUNCTIONAL DISTURBANCES OF MICTURITION (by Robert T. Edes, M.D., of Washington).—The object of this article is to show, in cases of hydronephrosis in which on post-mortem examination no obstruction to the exit of urine can be demonstrated, and in which, therefore, the dilatation of ureters and renal pelvis is, as has been said, "mechanically inexplicable," that yet physiological and clinical observation will reveal that obstruction sufficient to induce this condition has existed. The cause of such obstruction lies in some cases in repeated spasmodic contractions of the bladder, a view with which readers of this *Journal* will be already familiar. In other cases Dr Edes considers that the obstruction exists in consequence of bladder paralysis and consequent distension. He also hazards the view, that some cases of interstitial nephritis in the young may be due to such local trouble.—*Ibid*.

MESSRS BURROUGHS, WELLCOME, & Co. have favoured us with specimens of some new pharmaceutical preparations of considerable interest.

1. *Glycerine Suppositories*.—The value of glycerine, when introduced in quantities of a drachm or so into the rectum, in procuring a speedy and usually a painless evacuation, provided the fecal matter has descended into the colon, is now well recognised. Instead of the plan first suggested of injecting the glycerine directly by means of a small syringe, suppositories of glycerine jelly have been prepared. These, however, occasionally fail to act, and are expelled entire. To obviate this, Messrs Burroughs, Wellcome, & Co. have introduced into hollow cones of cocoa butter the proper dose of glycerine. The advantages of suppositories of this kind are that when the enveloping cone is melted by the heat of the rectum the glycerine thus set free stimulates expulsion, while the cocoa butter lubricates the passage. They constitute the simplest method of using glycerine, and have succeeded in our hands when the ordinary ones have disappointed us.

2. *Lano-creolin*.—The new disinfectant creolin apparently possesses powerfully destructive properties against micro-organisms, and in proportions up to 5 per cent. it seems non-irritating. It has a tarry, not unpleasant smell,—no disadvantage, in our opinion, in the case of a disinfectant. Put up in collapsible tubes in com-

bination with lanoline, it can be very conveniently employed for many purposes.

3. *Lanoline Soap*.—This approaches in use more nearly to the valuable superfatted soap introduced by Dr Unna of Hamburg than any we have yet tried. It evidently possesses most of the virtues of that invaluable soap for delicate skins, and we have found the specimen submitted to us for experiment most pleasant, cool, and non-irritating.

4. *Lanoline Cold Cream*.—The cooling effect of well-made cold cream when applied to the skin has been explained by Unna, who has specially investigated the question, as being due to the water mechanically, not chemically, combined with the fatty ingredients. We are not sure if a lanoline cold cream in this sense is a possibility, for lanoline enters into much closer relations with water than do the fats which own a glycerine rather than a cholesterin base. Lanoline cold cream so called is, however, a smooth, emollient ointment, and will no doubt prove applicable to many of the purposes to which ordinary cold cream is, while it has the advantage of not turning rancid.

PUBLICATIONS RECEIVED.

- G. M. BEARD, A.M., M.D.,—A Practical Treatise on Nervous Exhaustion. H. K. Lewis, Lond., 1890.
- F. H. BOSWORTH, A.M., M.D.,—A Treatise on Diseases of the Nose and Throat, Vol. i. Wm. Wood & Co., New York, 1889.
- W. H. BROADBENT, M.D.,—The Pulse. Cassell & Company, Lond., 1890.
- J. L. CORNING, M.A., M.D.,—A Treatise on Headache and Neuralgia. H. K. Lewis, Lond., 1890.
- H. CRIPPS, F.R.C.S.,—Diseases of the Rectum and Anus. J. & A. Churchill, Lond., 1890.
- E. M. CROOKSHANK, M.B.,—History and Pathology of Vaccination, 2 vols. H. K. Lewis, Lond., 1889.
- Prof. A. LE DENTU, —Affections chirurgicales des reins, des uretères et des capsules surrénales. G. Masson, Paris, 1889.
- Habitual Drunkards. Oliver & Boyd, Edin., 1889.
- W. HESS and W. ZEHENDER, —Bericht über die Zwanzigste Versammlung der Ophthalmologischen Gesellschaft. Heidelberg, 1889.
- Dr H. KÜHN, —Practical Guide to the Demonstration of Bacteria in Animal Tissues. Baillière, Tindall, & Cox, Lond., 1890.
- HUGH LANE, L.R.C.P.E., and CHARLES T. GRIFFITHS, L.R.C.P.,—The Rheumatic Diseases. J. & A. Churchill, Lond., 1890.
- A. W. MACFARLANE, M.D.,—Insomnia and its Therapeutics. H. K. Lewis, Lond., 1889.
- Prof. CH. MONOD and O. TERRILLON, —Traité des Maladies du testicule et de ses annexes. G. Masson, Paris, 1889.
- H. POWER, M.B., and L. W. SEDGWICK, M.D.,—New Sydenham Society's Lexicon, Part 17. Lond., 1889.
- WALTER PYE, F.R.C.S.,—The Surgical Treatment of the Common Deformities of Children. John Wright & Co., Bristol, 1889.
- ROBSON ROOSE, M.D., etc.,—Leprosy and its Prevention. H. K. Lewis, Lond., 1890.
- Sanitary Condition of Melbourne: Reports of Royal Commission on Water Supply and Drainage and Sewerage. Melbourne, 1889.
- SCRUTATOR, —Influenza. W. H. Allen & Co., Lond., 1890.
- W. E. STEVENSON, M.D.,—The Uses of Electrolysis in Surgery. J. & A. Churchill, Lond., 1890.
- The Year-Book of Treatment for 1890. Cassell & Co., Lond., 1890.
- Transactions of the American Otological Society, Vol. iv. Part 3. New Bedford, Mass., 1889.
- Transactions of the Association of American Physicians, Vol. iv. Philadelphia, 1889.
- Thirty-third Annual Report of the Registrar-General of Births, Deaths, and Marriages in Scotland. 1889.
- J. ERNEST VINET, M.A., M.D.,—Influenza. H. K. Lewis, Lond., 1890.
- J. S. WILSON, C.E.,—Geological Mechanism; or, an Epitome of the History of the Earth. John Heywood, Manchester, 1889.

PERIODICALS RECEIVED.

- Aberdeen Alma Mater,—Oct.
 Abstract and Index,—Feb., Mar.
 Albany Medical Annals,—May-Dec.
 Alienist and Neurologist,—July-Oct.
 American Journal of Obstetrics,—June-Jan.
 American Journal of the Medical Sciences,—July-Jan.
 American Lancet,—July-Jan.
 American Practitioner and News,—June 8-Jan. 4.
 Annales d'Oculistique,—May-Dec.
 Annales de Dermatologie, etc.—June-Jan.
 Annales des Maladies des Organes Génito-urinaires,—July-Jan.
 Annales des Maladies de l'Oreille, etc.—June-Jan.
 Annales de Thérapeutique Medico-Chirurgicales,—July-Dec.
 Archives de Tocologie,—June-Dec.
 Archives Générales de Médecine,—July-Jan.
 Archives of Gynecology,—July-Dec.
 Archives of Pediatrics,—July-Jan.
 Archives of Surgery,—July, Jan.
 Asclepiad,—Sept., Dec.
 Australasian Medical Gazette,—May-Nov.
 Berliner Klin. Wochenschrift,—June 24-Jan. 27.
 Birmingham Medical Review,—July-Jan.
 Births, Deaths, and Marriages, Monthly Return of,—June-Dec.
 Do., Quarterly Return of,—June, Sept.
 Boston Medical and Surgical Journal,—June 13-Jan. 16.
 Bristol Medico-Chirurgical Journal,—June, Sept., Dec.
 British Gynecological Journal,—Aug., Nov.
 British Medical Journal,—July 6-Jan. 25.
 British Journal of Dermatology,—July-Jan.
 Brooklyn Medical Journal,—July-Jan.
 Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris,—June-Dec.
 Bulletin Général de Thérapeutique,—June 30-Jan. 15.
 Calcutta Medical Record,—Jan.
 Centralblatt für Gynäkologie,—June 22-Jan. 25.
 Centralblatt für Chirurgie,—June 22-Jan. 25.
 Centralblatt für Bacteriologie und Parasitenkunde,—Bd. 5, No. 26; Bd. 6, Nos. 1-26; Bd. 7, Nos. 1-5.
 Chemist and Druggist,—July 13-Jan. 18.
 Deutsche Chemiker-Zeitung,—Jan.
 Dublin Journal of Medical Science,—July-Jan.
 Ephemeris of Materia Medica, etc.—July.
 France Médicale,—June 22-Jan. 24.
 Gazette des Hôpitaux,—June 22-Jan. 25.
 Gazette Médicale de Paris,—June 22-Jan. 25.
 Gazzetta Medica di Torino,—June 15-Dec. 25.
 Glasgow Medical Journal,—July-Jan.
 Hahnemannian Monthly,—Feb., Oct.
 Index Medicus,—June-Dec.
 Indian Medical Gazette,—May-Nov.
 International Journal of Surgery,—June-Dec.
 Jahrbuch für Kinderheilkunde,—Band 30, Heft 1-3.
 Journal de Médecine de Paris,—June 23-Jan. 26.
 Journal of Anatomy and Physiology,—July, Oct.
 Journal of Cutaneous and Genito-Urinary Diseases,—July-Jan.
 Journal of Laryngology and Rhinology,—July-Jan.
 Journal of Mental Science,—July-Jan.
 Journal of Nervous and Mental Disease,—April-Dec.
 Journal of the American Medical Association,—June 8-Jan. 11.
 Journal of the Respiratory Organs,—Nov., Dec.
 Journal of the Scottish Meteorological Society,—No. 6.
 Journal of the British Dental Association,—July-Jan.
 Klinische Monatsblätter für Augenheilkunde,—July-Jan.
 Lippincott's Monthly Magazine,—Jan.
 Liverpool Medico-Chirurgical Journal,—July.
 London Medical Record,—June-Nov.
 London Medical Recorder,—July-Dec.
 Médecine Moderne,—Dec. 22.
 Medical Chronicle,—July-Jan.
 Medical Press and Circular,—June 26-Jan. 22.
 Montreal Medical Journal,—June-Dec.
 Morningside Mirror,—March-Dec.
 New York Medical Journal,—June 15-Jan. 18.
 Nordiskt Medicinskt Arkiv,—Band 21, Nos. 1-11.
 North-Western Lancet,—Oct. 15.
 Nursing Record,—June.
 Occidental Medical Times,—July-Jan.
 Pacific Medical Journal,—Jan.
 Philadelphia Dietetic Gazette,—July 13.
 Philadelphia Medical and Surgical Reporter June 1-Jan. 4.
 Philadelphia Medical News,—June 15-Jan. 11.
 Philadelphia Times and Register,—June 15-Jan. 11.
 Practitioner,—July-Jan.
 Proceedings of the Society for the Study of Inebriety,—Aug.—Jan.
 Progrès Médical,—June 22-Jan. 25.
 Progresso Medico,—July 15-Dec. 1.
 Revue Chirurgicale,—Dec. 1-Jan. 15.
 Revue de Chirurgie,—June-Jan.
 Revue d'Orthopédie,—Jan.
 Revue Générale de Clinique et de Thérapeutique,—June 27-Jan. 23.
 Southern Medical Record,—Jan.
 The Tocsin,—July, Aug.
 Therapeutic Analyst,—July.
 Therapeutic Gazette,—June-Dec.
 Transactions of the Obstetrical Society of London. Vol. xxxi., Part 2.
 Transactions of the Sei i Kwai,—May-Dec.
 Virchow's Archiv,—July-Jan.
 Weekblad van het Nederlandsch Tijdschrift Geneeskunde,—June-Jan. 25.

Part First.

ORIGINAL COMMUNICATIONS.

I. — DISEASED CRAVINGS AND PARALYSED CONTROL: DIPSOMANIA; MORPHINOMANIA; CHLORALISM; COCAINISM.

By T. S. CLOUSTON, M.D., F.R.C.P.E., Physician-Superintendent, Royal Edinburgh Asylum for the Insane; Lecturer on Mental Diseases, Edinburgh University.

(Continued from page 705.)

Morphinomania.—The habit of taking opium differs widely from dipsomania in this respect, that the one is an absolutely unnatural and artificially induced appetite, while the other often proceeds out of the ordinary habits and needs of mankind. They differ as a drug differs from a food. But they have this in common, that in nine out of ten cases only certain kinds and qualities of brain can acquire them. Ordinary mankind cannot, fortunately, become dipsomaniacs in the mass, and still fewer of them could take to opium in excess. The greatest tolerance of opium as well as the keenest craving for it seems to exist among the Chinese, in the form of smoking, of any people. We know little of the psychological upbuild of the Chinese brain, or of the prevailing morbid heredities to which it is liable, but it seems clear that a general capacity to endure, and a patient resignation to things as they are, must be one of the most necessary qualities of millions of that stagnant, overcrowded country. A race without these qualities would never have solidified itself into the political and social condition of China, and remained in that condition for hundreds, or possibly thousands of years. The political heredity of a Chinaman must be so strong and definite that any other ideas than those of his ancestry must be utterly out of consonance with his mental habit. But even this cast-iron state of feeling from generation to generation cannot have utterly obliterated the spontaneity or the individualism of the *genus homo* in China. Is it a tenable hypothesis that the use of opium there is so prevalent and so keenly craved because it makes the quality of endurance more easy, while at the same time it creates an artificial and purely subjective state of mind in which unlimited scope is given to imaginary individual choice? It takes the Chinaman out of China, where no man has any choice to speak of, into a paradise where there are no mandarins, no struggles for existence under the most unfavourable

conditions, and where there is unlimited scope to live. In Europe, and in the only conditions with which we have to do, the opium habit is rare, but it prevails sufficiently to make its study an important one from both the mental and the bodily points of view. Unfortunately, one man of genius has so glorified and idealized the mental effects of opium as felt by himself, that we poor dryasdusts of science have no sort of chance of correcting and enlarging the picture he has made a part of English literature. Here is what the English opium-eater says:—

“O just, subtle, and all-conquering opium! that, to the hearts of rich and poor alike, for the wounds that will never heal, and for the pangs of grief that ‘tempt the spirit to rebel,’ bringest an assuaging balm;—eloquent opium! that with thy potent rhetoric stealest away the purposes of wrath, pleadest effectually for relenting pity, and through one night’s heavenly sleep callest back to the guilty man the visions of his infancy, and hands washed pure from blood;—O just and righteous opium! that to the chancery of dreams summonest, for the triumphs of despairing innocence, false witnesses; and confoundest perjury; and dost reverse the sentences of unrighteous judges;—thou buildest upon the bosom of darkness, out of the fantastic imagery of the brain, cities and temples, beyond the art of Phidias and Praxiteles—beyond the splendours of Babylon and Hekatómpylos; and ‘from the anarchy of dreaming sleep’ callest into sunny light the faces of long-buried beauties, and the blessed household countenances, cleansed from the ‘dishonours of the grave.’ Thou only givest these gifts to man; and thou hast the keys of Paradise, O just, subtle, and mighty opium!”

“That my pains had vanished, was now a trifle in my eyes; this negative effect was swallowed up in the immensity of those positive effects which had opened before me, in the abyss of divine enjoyment thus suddenly revealed. Here was a panacea, a *φάρμακον νίπενθες*, for all human woes; here was the secret of happiness, about which philosophers had disputed for many ages, at once discovered; happiness might now be bought for a penny, and carried in the waistcoat pocket; portable ecstasies might be had corked up in a pint bottle; and peace of mind could be sent down by the mail.”

Here is his physiological and psychological analysis of the difference between the effects of opium and alcohol:—

“But crude opium, I affirm peremptorily, is incapable of producing any state of body at all resembling that which is produced by alcohol; and not in *degree* only incapable, but even in *kind*; it is not in the quantity of its effects merely, but in the quality, that it differs altogether. The pleasure given by wine is always rapidly mounting, and tending to a crisis, after which as rapidly it declines; that from opium, when once generated, is stationary for eight or ten hours; the first, to borrow a technical distinction from medi-

cine, is a case of acute, the second of chronic, pleasure; the one is a flickering flame, the other a steady and equable glow. But the main distinction lies in this—that, whereas wine disorders the mental faculties, opium, on the contrary (if taken in a proper manner), introduces amongst them the most exquisite order, legislation, and harmony. Wine robs a man of his self-possession; opium sustains and reinforces it. Wine unsettles the judgment, and gives a preternatural brightness and a vivid exaltation to the contempts and the admirations, to the loves and the hatreds, of the drinker; opium, on the contrary, communicates serenity and equipoise to all the faculties, active or passive, and, with respect to the temper and moral feelings in general, it gives simply that sort of vital warmth which is approved by the judgment, and which would probably always accompany a bodily constitution of primeval or antediluvian health. Thus, for instance, opium, like wine, gives an expansion to the heart and the benevolent affections; but, then, with this remarkable difference, that in the sudden development of kind-heartedness which accompanies inebriation, there is always more or less of a maudlin and a transitory character, which exposes it to the contempt of the bystander.”

No doubt De Quincey was thus idealizing the effects of his favourite but fatal drug. We cannot take what he says as a scientific description of even the effects of the drug on himself. His imagination was too strong for that, and his literary faculty exceeded his imaginative. Even the amount of sober fact that underlies all this brilliant picture only applies to the effects of opium on his own brain and a few others of similar quality. It is utterly useless as a guide to the effects of opium on the brains of ordinary men. It has no doubt acted as the lure to entice thousands of people to their destruction, for De Quincey's account of the terrible effects of his drug is not read by one for ten that read his prose poem on its joys. And if they did, there are too many minds who ignore the hell that is to follow for the bliss of pleasures near at hand.

No general rule can be laid down as to the psychological effects of the exciting stage of opium, because they differ so greatly in different persons, but the following symptoms are very general:—The higher and finer sense of duty is soon impaired; volition is diminished by even one dose while it remains in the blood; the desire for active muscular exercise or, indeed, for active energising of any sort is much lessened. The appetite for food and the sexual desires are lessened. The intellectual processes are in some cases heightened in intensity; but trains of thought arise more by suggestion, continue more automatically, and are less under control altogether. The imagination is dulled in some cases, but when excited, is no doubt greatly exalted. The feelings are also dulled in some cases, but pleasurably intensified to an extraordinary degree in others. Take De Quincey's description and

modify every statement about fivefold, and probably one would get a general idea of the actual effect of opium on ordinary brains. Looked at broadly, opium in single doses or temporarily taken diminishes the intensity of the faculties that lead to action or inhibition, and intensifies those that lead towards a subjective and introspective life. I need not here enter on the physiological effects or the therapeutic uses of the drug.

When taken in excess continuously for very long periods the mental effects are much more marked and the brain damage greater and more permanent than corresponding excesses in the use of alcohol. Intensify and exaggerate the effects of single doses tenfold, and we get a general idea of the effects of continuous use. In bad cases one may describe the volition, the resistiveness, and the power of attention to objective things, as being paralysed. One effect is very marked and has not been sufficiently dwelt on, and that is the asocial condition it produces. The real opium eater is always a recluse; he shuns his fellows; he lives in the dark; he shirks social engagements; he has lost the sense of comradeship; and he avoids the duties of natural affection because he does not feel its ties. His own too subjective world is all he wants to live in. He is melancholic after the immediate effects of the drug have passed off. He rejects all the adjuncts and supports of social life, —orderliness, cleanliness, the appearance of his person and his clothes. He prefers to be among a class of society less moral, less educated, less refined, and less evolved generally than that in which he was born. He gets into that state which would at once disintegrate society, and reduce it to barbarism, if not to extinction, were it to become general.

The bodily symptoms and accompaniments of this mental change are well marked. He loses appetite for food, and often has nausea. His relish for exercise is gone; he lies in bed all day. He loses flesh, and looks grey and anæmic. The patient does not sleep well or soundly. The eye is lustreless after the immediate effects have gone, and he cannot look you in the face. Cold is felt intensely; no amount of clothing can keep him warm. The pupils take on a sort of permanent contraction. The tongue is tremulous, like that of a heavy tobacco smoker, or drunkard, or a general paralytic. The hands are often tremulous, and the handwriting altered. The pulse is usually small. The sexual appetite is paralysed.

But, then, is it not the case that many persons take opium habitually for the greater part of their lives, and yet remain strong and healthy, and do good work, often even highly original work? This is undoubtedly so in a few cases; and Christison's remark about persons being opium eaters for years without its being found out by relatives or friends, is certainly true. I lately saw a case where for fifteen years a lady had taken over 19 grains of opium a day, and it had never been suspected by her husband or her

nearest friends. Still more strange, she had been a typical opium eater at one time, had been "cured" by residence in an asylum, and had, after getting home, begun the regulated use I have described, which she never seems to have exceeded except on Sundays, when she usually said she was not well, and stayed in her room. But such are but the exceptions that prove the rule, for they are the few cases in which the dose is not increased, and does not lose its effect. These exceptions are usually strong men who go up to a certain point and stop there, just as many men take a large daily quantity of alcohol, some of them going drunk to bed every night of their lives, and yet keep healthy, live long, do good work, and die "natural deaths."

One of the most characteristic facts of the morphia habit is that the dose which this month produced full effects will next month cease to do so, and must be increased, until enormous quantities of the drug have to be taken daily,—quantities enough to poison those not habituated to the drug ten times over. We all know De Quincey's habit of drinking laudanum in sherry glasses just as we drink wine.

The morbid craving for alcohol may be intense, and the power of inhibition entirely paralysed, but neither the one nor the other can compare with the imperativeness of the morphine craving and the utter lack of any rudimentary trace of inhibition over it.

A morphinomaniac, in an advanced stage of his complaint, is a most miserable object in mind and body. He is manifestly diseased in all his nervous and most of his other functions. There is just one other being on earth who is more miserable-looking and more miserable, and that is the morphinomaniac who is being cured by enforced abstinence. The one is alive; the other is more than half dead. As we shall see, the fight is not altogether for the cure of the deadly habit, but in the first instance to enable the patient to live through the cure.

The following case is a typical one of morphinomania:—A. B., studying for a profession, had, about the age of 20, an illness which left him weak and sleepless. He was distinctly of a nervous diathesis. He had to go in for examinations, and a friend told him that opium was a good thing to take to steady his nerves and to make him sleep, which was his weak point. He tried it, and found its effects delightful, and just what he wanted. He fully intended to stop it when he got strong, and after he got through his next examination. But he got more and more dependent on it, and the giving it up seemed ever harder, and it also seemed unnecessary, for he felt well, ate well, studied, enjoyed himself, and thought the morphia just supplemented his food. He easily persuaded himself that his "constitution needed it," though he always had an uneasy feeling in his mind that it was a dangerous "food" he was getting himself accustomed to, and that its effect might, in the long run, be bad instead of good. Of course it was

easy to stifle this feeling by resolving that he would give it up the moment he began to feel the slightest bad effect. By the time he had taken it in moderate doses for a year or two, he found that the dose, to be efficient, must be much larger than it had been. He entered his profession, and found that his power of facing up the future, of looking and planning, and resolving on any course, was weakened. He was alarmed, and again tried hard to give up his habit, but could not face the pain it caused whenever he tried it. He lost touch with his friends and relatives, and went "to study" in a foreign capital, thinking or fancying that a "complete change" would help him. But the habit grew stronger when there was no one but strangers about him, and settled into a part of his life. He had rheumatic arthritis, and morphia was prescribed for this, which strengthened the habit still more, for he needed large doses; and from that time he knew he was doomed. He again made an attempt to give it up, but could not do so. For about ten years he stayed abroad "studying," now reading a little, going solitarily to theatres and the opera, which he thoroughly enjoyed, like De Quincey, after his dose. He settled down to 10 grains of muriate of morphia a day, taking this usually in one dose in the morning, taking no breakfast, but eating a good late dinner. He was not social, and walked out much at night in bye-ways. He thinks his reason for this was that he knew he was a slave to the habit, and felt degraded and ashamed. It is certain he never wrote to his friends except for money, that he led the life of a morbid recluse, that he did no work, and that he got to be worse and worse in body. When he returned to this country he was a "broken-down" looking man, older than his age, his complexion grey, his eyes changed in expression, his habits morbid and peculiar, and his capacity for work or continuous thinking or living like other men gone. After some years of this life, and when weak-looking and decrepit, his mind being so weakened that he had delusions of suspicion, being untidy and uncleanly, his social habits so sunk that he would see no relative, living in a lower social stratum, his friends, partly by persuasion, and partly by the stern argument of cutting off the supplies of money and morphia, got him to place himself in an asylum voluntarily. On admission, after these twenty-five years of morphia habit, he was a miserable-looking object. He stooped; his gait was weak; he could not look you in the face; his complexion was grey; his eyes blood-shot; his body emaciated; his pulse 90, bounding and soft; his temperature $100^{\circ}4$. His tongue had a large black triangle occupying nearly its whole dorsum, and was excessively tremulous. He had gastric catarrh, and his hand was violently tremulous, as well as his whole body, when he made the least motion. Heard music "as if playing in his ears." Mentally, he presented a mixture of depression, enfeeblement, fear, irritability, and suspicion. He could not think; he could not reason; his whole attention was

concentrated on himself and his bad feelings. He was treated with beef-tea and brandy, but the beef-tea caused diarrhoea, and had to be stopped. He could retain milk, liquid custards, and brandy better than anything else. His heart's action got very weak, and digitalis seemed to strengthen it. No morphia was given, but chloral and a little bromide were used—I should now give paraldehyde or sulphonal—to produce sleep. For a week he was “horribly depressed” and debilitated, and his life was certainly in danger. He had a constant burning pain in stomach and bowels, most difficult to bear, and dreadfully lowering. He slept restlessly, and awoke with a “feeling of horrors.” In a week the temperature was normal, and in a fortnight he had got over all the worst symptoms. He had periodic attacks of irritability of stomach for a year. He has never got over his long morphia habit mentally—not that he has any craving for the drug—but all the intensity is out of his brain in thought, feeling, and volition. He is hypochondriacal, childishy irritable and suspicious, unsocial, consciously unfit to face the world, quite unable to do any sort of real work, and never has any feeling of organic satisfaction. He is asexual, and prefers still to walk out in the dusk along solitary roads rather than in public places. In fact, his brain is irretrievably damaged in all its higher functions by its twenty-five years’ continuous intoxication by opium.

Before commenting on this case I shall relate two others.

C. D. had been a labouring man, and had regularly taken laudanum for twenty years before his admission at 49 to the Asylum as a certified patient. For many years his daily allowance had been 6 oz. of laudanum, that is, about 200 grains of opium. He is described as having been “delusional” for three years before admission. Ten years ago he had a “fit” with unconsciousness, and another similar “fit” three days before admission. After it he had been unconscious for an hour. His face had been drawn to left side, and both limbs had been convulsed. He had been “excited” three years ago after a fit. For three months back his wife had noticed his speech to be tremulous. His delusions before admission were grandiose. He had an excess of *bien être*. He had “gold watches” under his bed, was to get a “lot of money,” and had exaggerated notions of his bodily powers. On admission he was fairly contented, and said the house belonged to him. His memory was almost gone; he was mentally enfeebled generally. His articulation was tremulous and thick. He gave the impression of being a general paralytic, and one asked: “Is this a case where continuous and excessive use of opium has produced general paralysis, as excessive drinking seems to do sometimes?” He had been in the Infirmary for a few days, and the worst part of the “cure” was over. His tongue was tremulous; his temperature 98°·6 at first, but it rose in a week to 102°. This elevated temperature in advanced morphinism has scarcely been noticed, but is

very significant of the deep-seated cortical mischief that is present. For a long time after admission C. D. had, when asleep, a peculiar, irregular breathing, suggesting Cheyne-Stokes breathing, with a slight rhythmical movement of the right arm at a certain point of the inspirations. He never asked for opium, soon picked up in strength, and took his food well, and now remains a healthy, facile, forgetful, partial dement, resembling much the ordinary cases of alcoholic amnesia with general mental damage, plus more speech damage. In both cases the higher strata of brain centres, where volition and craving lie, seem gone. The self-control is also gone, but there are no active brain processes or troublesome cravings to inhibit. He has now remained three years in that state.

I shall now relate a third case, which perhaps should have come first, because the morphia habit was of much shorter duration. It was chiefly used hypodermically, and evidently much less permanent damage was done.

F. G., æt. 19, no neurotic heredity admitted, of "self-indulgent" habits. Once had a fall, and sustained injury to one hip, which became ankylosed and had to be "broken up." Abscesses formed, and he suffered great pain. For this hypodermic injections of morphia were ordered. This first occurred about five years before his voluntary admission into the Asylum for morphomania. The habit grew on him, so that "it had become a craving, completely demoralizing him." He committed offences against the law to get money with which to buy morphia, for which he was punished. He has been sleepless except when under the influence of morphia. He was lazy, "self-indulgent," and without any traces of moral feeling or natural affection. He used "immense quantities" of morphia subcutaneously, and took by the mouth as much laudanum and nepenthe as he could get. On several occasions he has taken at once 3 oz. of nepenthe, equal to 100 grains of opium.

On admission he was much depressed and nervous, sleepless and exhausted. He had no delusions. He was fairly nourished. The tongue was moist, flabby, and furred. The whole of his thighs and groins were discoloured from hypodermic injections, and the abscesses they had caused. His pulse was 96, of fair strength, and his temperature 98°·3. His weight was 8 stone 7 lbs. The process of cure consisted of stopping the morphia at once, and keeping up his strength by special nourishment. He improved rapidly, and in a fortnight he had got over all the worst symptoms. By that time he was sleeping well. He took to heavy smoking, which I allowed. In five months he was discharged recovered; and I believe did not at once take to morphia again. He was not a youth with much power of inhibition naturally.

Those cases show—what all who have had experience agree on—that opium establishes a far more dominant habit than even alcohol, and, in fact, cannot be cured by any self-effort after it

has been established long, and that its mental effects are more certainly and distinctly an insanity than those of alcohol. This proves that there has been a great disintegration of the highest mental quality, viz., that of volition. The same thing is shown in the constancy of the habit. Periodic dipsomania, with intervals of self-control and a morbid craving, is common; but no such cases of periodic morphinomania are on record. Once established, there is no diminution or cessation of the craving for a day. A dipsomaniac may do some work at times; a typical opium eater never after it is fairly established. As is well known, opium affects the trophic energy of the brain even more than alcohol. There is more loss of flesh and far more gastric disturbance. It is often said that the visible pathological damage to the brain and its membranes is more seen from a long-continued and excessive use of alcohol than of opium. I am not in a position to speak dogmatically on this point, but C. D.'s case does not point that way. If the membranes are less damaged, assuredly the cortex is more so, whether our means of investigation enable us to prove this under the microscope or not. A damaged function implies a damaged organ, and the cases A. B. and C. D. prove both. The sort of damage to the motor functions of the cortex implied in C. D.'s convulsions and impaired articulation has not been much referred to by authors on the subject. It is common for an alcoholic case to simulate general paralysis in its grandiose delusions, its convulsions, its tremulous speech; but this has seldom been recorded of opium before. Such extreme cases enable us to estimate the damaging effect of the lesser doses taken for shorter times.

The modern habit of the hypodermic use of morphia is more subtle and dominant than even its use by the mouth. The effects are more instant, and the stomach and gastric mucous membranes seem to suffer somewhat less. I lately saw a lady about 30, who had arduous professional work to do, and had a year or two ago an accident which left her subject to severe neuralgic pains. To enable her to subdue this, and so to do her work, she had prescribed for her the hypodermic use of morphia. This had the effect desired, but it had to be continued, and within a year a habit was established, and a craving that was masterful and required a very strong exercise of will to subdue it, was set up. All fatigue, all pain, and every state of body that implied nerve exhaustion, abnormal nervous depression, irritability, instability, or hyperæsthesia, suggested and seemed to demand morphia as a remedy and a calmate. This was unfortunately yielded to, and the more the remedy was used the more regular grew the occasion for its use. Intellectually she most fully realized the danger she was in, but she had not the courage to stop the drug at once and for ever. She was only taking about two grains a day, but the taking even this, or the leaving it off, meant all the difference between happiness and intense misery. I counselled an absolute and immediate

stoppage of the drug, the placing herself with a companion on board ship on a long voyage, or a visit to Sutherlandshire, ten miles from a druggist, with life in the fresh air, no intellectual work, and no avoidable worry, taking some bromide and wine for a fortnight as a temporary sedative to the brain. I have reason to think that my advice was taken, and was successful. The case impressed me more than any case I ever saw with the subtle psychology that lies in the use of pain-destroying drugs. I never felt before so keenly the responsibility that ever lies on him who prescribes them. I never asked the question with more sadness, "Are there not worse things than pain?" for to deaden pain in this case had been to all but wreck a life. There was no nervous heredity, no natural infirmity of will, and no lack of high moral qualities in this case. A finer all round specimen of womanhood of the nineteenth century intellectual and forceful type, it would have been difficult to find; and here she was almost helpless in the grasp of a craving that would certainly ruin all her high mental qualities if it were long gratified.

As to morphinomania, the following is a summary of what I have said:—

1. The habitual use of opium is in nine cases out of ten most injurious to the higher mental powers, and more especially impairs the volition.

2. The dose has to be steadily increased till such an amount is taken as tends to impair nutrition and the trophic energy of the brain, to disturb the appetite and the whole alimentary system, and ultimately to destroy the power of natural sleep.

3. The craving set up by such excessive use of opium is one of the most persistent, intense, and difficult to resist of any known morbid cravings. It has no remission or periodicity in it.

4. The nervous constitution of the patient has very much to do with the inception of the habit. It may be said generally that persons of the nervous diathesis, of nervous or insane or drinkers' heredity, all persons who feel and dread pain excessively, and most "excitable" persons, are specially liable to acquire the craving.

5. Given or taken for insomnia or to relieve pain, is the origin of most cases of morphinomania.

6. It behoves medical men to take the constitution of each individual patient carefully into consideration before opium is prescribed, and to ask, "Is there any danger of a habit being set up?"

7. As to the treatment of morphinomania, I have little hesitation in laying down its principles:—Help from without in the shape of skilled strong nursing; control and never remitting companionship are needed in almost all cases. It is better and safer to undergo the short Hades of absolute stoppage than the more prolonged purgatory of tapering off. While this is being gone through, use the bromides, wines, every form of beef and peptonoids that the stomach or the rectum will retain; bismuth,

ice, and counter irritation for the gastric pain and vomiting; digitalis and strophanthus for the weak and irregular heart's action. I should now use paraldehyde or sulphonal to get some sleep for a few nights, but I should not go on for long with them. If there is emaciation, I should try Dr Playfair's recommendation of massage,¹ though I suspect some of the good effect in his cases resulted from the control of the massage nurses, and the taking up of the patient's mind by the details of the process, and the assertions that would be dogmatically dinned into their ears as to its unflinching efficacy. The great things to aim at are good nerve tone, firm muscles, a brown sunburnt skin, steady occupation, as much fat as can be put on, a sound moral sense all round, strengthened inhibition, and a dominating conviction that the drug is poison in any dose, and under any possible circumstances whatever.

Chloralism.—Chloralism for a time threatened to become a rife craving, but chloral is becoming less liked and used than it was at one time, and I believe will be numbered largely with the superseded drugs. Dr Wilson of Philadelphia thus describes the symptoms produced by chloral used continuously:²—“There is general and often serious derangement of health without adequate discernible cause; the appetite is poor and capricious, the digestion imperfect and slowly performed; jaundice of variable intensity, often slight, sometimes severe, occurs in many cases; the bowels are not as a rule constipated; dyspnoea, upon slight exertion, is, in the absence of pulmonary, cardiac, or renal trouble, of diagnostic importance. The circulation is, as a rule, feeble; disorders of the skin, persistent or easily-provoked; conjunctivitis, and a tendency to hæmorrhages to mucous surfaces, also occur. When with these symptoms, irregularly grouped as they are apt to be, we find a tendency to recurring attacks of cerebral congestion, persistent or frequently recurring headaches, and the evidences of sub-acute peripheral neuritis, the abuse of chloral may be suspected. The pains in the limbs are almost characteristic; they are acute and persistent, neuralgic in character, but not localized to special nerve tracts; they are more common in the legs than in the arms, and occupy by preference the calves of the legs and the flexor muscles between the elbows and wrists; they do not implicate the joints, are not aggravated to any great extent by treatment, and are often temporarily relieved by gentle friction. The pains of chloralism have been described as though produced by encircling bands above the wrists and ankles. The suspicion of addiction to chloral becomes the more probable if there be a history of prolonged, painful illness, or prolonged insomnia in the past. The suspicion is confirmed if we remember at the same time perversion of the moral nature, enfeeblement

¹ *Journal of Mental Science*, July 1889.

² *The Medical and Surgical Reporter*, 11th May 1889.

of the wits and of the intellectual forces." Chloral differs from the other drugs, the craving for which we are considering, and from alcohol, in this essentially, that its effect is not stimulant in any dose, small or large, but simply and only sedative and hypnotic. It creates no ideal state of mind, it simply produces self-forgetfulness and sleep. A craving for it, or a habit of it, is therefore a strange and altogether abnormal thing. Why any human being should crave a drug, whose taste is disagreeable, to produce sleep in excess of the normal time, is entirely inexplicable on any hypothesis except that which attributes an essential affinity between the brain and nervous action, not only to alcohol, but to all the class of stimulant, sedative, and hypnotic drugs.

The following was a marked case of Chloralism ending in insanity:—

L. M.,¹ æt. 47. Father had died of kidney disease at an advanced age; mother "nervous," and died of paralysis; two sisters are neurotic and eccentric; a brother is a confirmed dipsomaniac. Patient had been teetotal for ten years. About seven years before admission into the asylum he had been ordered a mixture of chloral and bromide to relieve a spasmodic retention of urine. He gradually got into a habit of taking a drachm of each of these drugs daily. This continued for six years with no "apparent" bad effects. The patient was, however, aware that a craving had been thus roused which he could not at will control. The sedative effect was craved apart from the medicinal action, the necessity for which had ceased. At the end of the six years he took an attack of bronchitis, and was ordered, he says, this time chloral in 60-grain doses for the breathlessness. The bronchitis was soon recovered from, but the chloral was continued on account of its lethe-like qualities; for he was depressed, and had business worries, and sought oblivion in the effects of the drug. He soon began to take 180 grains a day regularly. While this stupefied him greatly, he was able for four years to attend to business in a way. He carried the bottle of chloral solution in his pocket, and took some every hour. It produced a feeling of quiet for an hour. He took only a dose of 10 grains at a time during the day, and a larger one at night to produce actual sleep. If he awoke he took another dose. During the day sleep was not induced, but a soothed feeling and a dreamy sense of comfort and *bien être* which drowned his cares. The general effect seemed to be like the sedative effect of opium. He had no actual depression as the result of the drug, but a feeling of lassitude, nervous debility and exhaustion, inaptitude for work, and incapacity for thought, as the effect of each dose passed off. He got more irritable as time went on, and for all his bad feelings chloral was his panacea. His digestion got weak, his appetite poor; his food lost its relish, and he took an

¹ This case was fully reported in this Journal by Mr Inglis in the September number 1877.

insufficient quantity of it. Nausea, sour eructations, and vomiting, and a furred tongue, showed how deeply his alimentary organs and their innervations were affected, as well as the fact that he was constipated, had piles, and the *fæces* were hard and white. Slight jaundice showed that the liver was also affected. By-and-by a moral and affective change took place in him. His character became untruthful and deceitful, and his love for his wife and children changed to dislike and suspicion. He was at times so passionate that he threatened violence to his wife. He would leave the house and wander aimlessly about the streets. He neglected his duty and his business.

Three weeks before admission he stopped the chloral and took to whisky in quantities sufficient to keep himself muddled, but not drunk. In a day or two after beginning the whisky, he had diarrhoea and a great discharge of blood from the bowels. In a few days he became violent and suicidal. Then he got into a condition which resembled delirium tremens, with hallucinations of hearing and sight of a frightful kind. He could not sleep. The next stage was convulsions of a severe kind occurring thrice at intervals of four hours. Then there followed stupor, and then raving delirium, for which he was at first sent to the Hospital, and thence to the Asylum.

On admission he looked old, broken down, anæmic, unable to speak aloud, or to walk. Mentally he was enfeebled, and also slightly depressed. His power of attention was gone, and his memory also. Had vague, fleeting delusions, such as, that the Queen took an interest in him. There was persistent muscular tremor, and none of the finer acts of co-ordination, such as writing or whistling, or articulating difficult words, could be done at all. The pupils were equal, dilated, irregular at margins, and insensible to light. The right side of the face was paralysed, the spinal reflexes were dulled, and sensation was hyperæsthetic, but he had no pain of any sort. Bowels were constipated, *fæces* hard and white, tongue white and coated. Temperature was 97°.

The patient had the most intense craving for soporifics, but none were given him. After a few nights of insomnia he slept. He got strychnine, tonics, and gentle aperients; exercise in the fresh air, and constant supervision, and was subjected to a regular regime. He gained in flesh and appearance very fast, and was quite well in three months.

The alcohol he had taken for a fortnight coming on the back of the long-continued use of chloral may have accentuated and complicated the symptoms of the chloralism to some extent, but there can be no doubt that the chief symptoms present were those resulting from the use of chloral. It is clear that it sets up a diseased craving like morphia and alcohol, and that the power of controlling this is also paralysed by the drug. The symptoms present are alimentary as well as nervous—more so than in the case of alcohol, opium, or cocaine. The way in which the symptoms of a ten years'

abuse of the drug was recovered from in three months shows clearly that chloral is far less permanently hurtful to the nervous centres than alcohol or opium. The wonder to me is that it had not weakened his heart's action more, and so killed him.

Cocainism.—The newest born of all the drug cravings is that for cocaine. It required two of the latest discoveries of science—the hypodermic needle and the extraction of cocaine from the coca-leaf—combined, to create this new vice-disease. So far as I have seen or heard of, cocaine is now always hypodermically taken to get its intoxicating effects. But, historically, its use as a narcotic intoxicant is as old as that of distilled alcohol, for the Spaniards found its virtues held in high esteem by the Peruvians in the fifteenth century. The plant was reserved for the use of the Incas, the coca plantations being owned by the State. The habit, when formed, reduced its victim to a pitiable condition. "Its first effect is to weaken digestion. To loss of appetite succeeds an inordinate desire for animal food. Then dropsical swellings and boils come on; the breath is fetid, the lips pale, and the teeth are discoloured; the eyes are dim and sunken, and the skin becomes of a yellow tinge."¹ It was thought to be strength-giving and fatigue-resisting, neither hunger nor thirst being felt while it is being chewed.

This is not the place to describe the physiological effects of single doses, so I shall proceed to relate two cases of excessive and continuous use.

N. O., a young professional man of intellectual attainments far above the average, and of very industrious habits. He was of the nervous diathesis, there was a strong heredity towards mental disease and paralysis, and some history of phthisis also. He took to the use of cocaine eighteen months before I made his acquaintance, using it at first sparingly for its stimulant effect to enable him to do his work. He was in weak health, and had some of the preliminary symptoms of phthisis, being thin, and run down nervously. He says that it did not, like opium, excite brilliant fancies or produce a conscious excitement. He at first gained in flesh under its use, and did his work well; but he had rapidly to increase the dose to get the same effects. Beginning with half a grain, he soon had to take more and more at each hypodermic injection, till in six months he was using forty-five grains at least a day, and probably much more. From what I could make out, he often took injections of ten grains at a time. Rapid mental and moral deterioration followed after three months' abuse of the drug to this extent. He got dirty in his personal habits, eccentric, neglectful of duty, prevaricating when excuses for his conduct had to be made, and very sleepless, often sitting up all night. The next stage in his downward course was that of actual insanity, whose symptoms were hal-

¹ *Anæsthetics*, by George Foy, p. 83.

lucinations of vision and loss of memory. He imagined that people talked about him in the streets, and accused him of crimes. He was impulsive, and could scarcely restrain himself from assaulting his imaginary tormentors, with whom he remonstrated on the street. His memory was at times greatly impaired. He had no power to do any work; he did strange, motiveless acts. Throughout all this there was a half-consciousness that his brain was acting morbidly, and that his false beliefs might be delusions.

When I saw him first he was considerably excited; his memory was fairly good; he was quite coherent; and spoke of his "delusions" freely, as only half believed in. He was pale, his skin muddy, his pupils widely dilated, his nutrition and muscularity fair. He was utterly dirty and untidy—how all the manias take the outward polish off a gentleman! His pulse was good and regular, and was for a time 98. His trunk and limbs were scarred with the hypodermic needle. I gave him within the first forty-eight hours of treatment two hypodermic injections of cocaine of 1 grain each, and then stopped it entirely, giving him liquid food, wine, and plenty of strong tea and coffee, which he found a sort of substitute for the cocaine. He was most miserable, and begged for the drug for about a week, but in that time he had got over the effects of stopping its use. He was then sleeping well, eating well, and walking out in the open air a great deal. He became cheerful, and seemed to acquiesce in the necessary restrictions on his liberty implied in the treatment. But it is certain that he could no more of his own accord have carried out that treatment than he could have gone to the moon. Mentally he showed to a large extent the dipsomaniac's condition. He was plausible, full of promises, cocksure of not again taking to the drug, and suave towards those who had the control of him to a suspicious degree. But the strength of his resolution and the intensity of his craving were soon tested by his taking secretly to his old habit on the first opportunity he had. Every kind of excuse and evasion was practised. He showed that his moral control was utterly weakened, though his physical health was excellent, and he gained two stones in weight in a month. It was quite clear that to give any such case a proper chance of cure the law should allow him to be detained under supervision and enforced abstinence from the drug for a year after every symptom of intellectual disturbance had passed away. To gauge the strength of the craving and the power of the control is simply impossible. One can only apply a rough, common sense rule in regard to the time the highest brain functions are likely to take to recover their normal working, and then the only real test has to come, viz., the actual enjoyment of full liberty of action as an ordinary member of society.

The next case in all its essential features was like the last, but longer and more aggravated.

P. R., also a young professional man, cheerful, fairly indus-

trious, and steady. Heredity towards paralysis and phthisis on mother's side. Three and a half years before I saw him he had begun to take morphia hypodermically for the relief of pain, and continued this more or less, not apparently continuously, till two years ago, when he began to use cocaine to cure the morphinomania which he felt was mastering him. The cure soon was worse than the disease, for he continued the use of cocaine regularly. The result of each dose was at first exhilaration, followed by depression, which for its remedy needed another dose. The morphia habit had caused moral deterioration, but the cocaine habit accentuated this tenfold. Want of system, actual disorder, irregular habits generally, want of attention to ordinary family and social duties, and untruthful excuses, all followed each other rapidly within three months of beginning the cocaine habit. At the end of that time his mental disintegration proceeded deeper, and delusions of suspicion developed themselves, accompanied by hallucinations of sight and hearing. He lost the sense of time, and had not the rudiments of punctuality, even as to important matters. His weakened volition especially showed itself in procrastination, and his weakened control in extreme irritability. His next delusion was clearly suggested by the paræsthesia caused by the drug. He imagined he had a skin disease. He affirmed he felt sensations in the skin that could only be caused by living germs. He used medical means to cure the imaginary skin trouble. He often mixed the cocaine with morphia, and has lately taken 90 grains of cocaine and 20 grains of morphia each day, so far as can be ascertained. His irritability, his utter disregard of family duties, his untruthfulness, his sacrifice of everything and anything to get cocaine, his passing as an ill-used man when efforts had been made to restrain him, had gone the length of insanity. His utter want of system is best illustrated by the fact, that for two years before I saw him he had never sat down to a regular meal.

When I first saw him he was anæmic, weak, and covered with sores from the use of the needle. He had at last been driven, more apparently by coming to the end of his money to buy more cocaine, to place himself under care. Mentally and morally he was broken down, retaining enough of obstinacy, unreason, and discontent to be a most troublesome and disagreeable patient. I gave him a few small hypodermic injections of cocaine for the first forty-eight hours, and then gave a little morphia, some sulphonal, bromide of ammonium, brandy, tea, and coffee. He complained of all sorts of pains, evidently to get morphia or cocaine. He was restless, fretful, irritable, and during the night almost maniacal. He was, as he said, "in hell" during the night. He improved much in a fortnight, and then a change of residence was tried, still under control, and he got over all the symptoms of his disease in a few months. The last accounts I had of him are good.

Looking at cocainism generally, and comparing the effects of

cocaine on the higher functions of the brain with those of alcohol, opium, and chloral, one sees that they are more distinctly in the direction of intellectual perversion, of technical insanity in fact while they last, but that they are less enduringly hurtful and sooner recovered from than any of the other three drugs, except, perhaps, chloral. Hallucinations of sight and hearing, paræsthesia, especially of the skin, and insane suspicions, are constant accompaniments of cocaineism. The moral disintegration of a man seems to be the same in all those diseases; but the present intensity of the craving for cocaine is perhaps greater than for any other narcotic or stimulant whatsoever.

There are cases now on record where the drug, from being used in the most legitimate way as an external application to subdue the pains caused by skin eruptions and sores, has set up a craving for its continuous use and for its effects on the higher brain functions quite apart from the analgesic effect for which it was employed.

The chief facts about cocaine in relation to cocaineism may be thus summarized:—

1. It is the acutest and the most absolute destroyer of inhibition and of the moral sense generally that we yet know.

2. The morbid craving is very intense and control is absent.

3. The dose requires to be increased faster than that of any such drug to get the same effect.

4. The delirium and hallucinations of all the senses of single doses become chronic in cocaineism.

5. Its immediate effects are more transient than any other such drug, but this does not apply to the craving set up.

6. The treatment of cocaineism consists in outside control of the patient, in stopping the drug at once, in careful watching—I should not trust a patient under treatment as regards suicide for the first week—nursing, the use of every sort of food that will keep up the strength, and of the bromide of ammonium, brandy or wine, tea and coffee, and possibly a hypnotic, like paraldehyde or sulphonal, for two or three nights at least.

7. A patient suffering from cocaineism can usually be certified as insane so far as the presence of delusions are concerned, but he gets over these so soon, and yet is so far from the real cure, that certification and sending to an asylum is not a satisfactory process altogether. We need cocaineism included in any special legislation for dipsomania.

(To be continued.)

II.—CASES OF OVARIOTOMY.

By SKENE KRITH, M.B., F.R.C.S. Ed.

ON 18th February 1889 I performed ovariectomy on a case which presented several features of interest.

The lady was 48 years of age, and, although she had been ailing

for some six or eight months, had not really become ill until the month of December of the previous year. She was living in the country at that time, and was treated by various drugs for sickness and vomiting, due, it was supposed, to derangement of the liver. As there was not any improvement, she went home to Newcastle, and consulted Dr Wilson of Gateshead on the 8th February. A tumour, rising from the pelvis and reaching half-way up to the umbilicus, was at once discovered, and arrangements were being made for sending the lady to town, when, on the 13th of the month, she was seized with a sudden attack of vomiting, followed by most alarming collapse. On examination, it was found that the outline of the tumour could not be defined, showing that there had been a rupture at some point. Next day a considerable quantity of free fluid was discovered in the abdomen. It increased rapidly; and as the strength, never good, was fast going away, Dr Gibb was asked to see the patient, to consult as to the advisability or otherwise of the move to London. On account of the great feebleness, it was thought that the best chance of recovery was to be obtained by having the operation performed without running the risk of a long railway journey. Dr Wilson therefore telegraphed on Saturday evening, asking either my father or myself to come to operate as soon as possible. Dr Keith had left three days before to see a patient in Mexico, so I went north on Sunday night, and saw the patient with Dr Wilson and Dr Gibb early on Monday morning.

The state of affairs was as follows:—The patient looked ill, and the pulse was small and feeble. The abdomen was considerably distended, and was dull on percussion, except on the right side. On making pressure and percussing deeply, no clear note was elicited, and movement of the patient did not make any change. The tumour could be felt from the vagina only, as its upper limit in the abdomen was masked by the ascitic fluid.

Dr Gibb was unable to be present at the operation, but brought Dr Campbell for the ether. Dr Wilson kindly assisted. On opening the abdomen, about eighteen pints of ordinary straw-coloured ascitic fluid came away, practically the whole of this having been thrown out within a week. The ascending colon was adherent to the tumour, and the clear note in the right side, even when the patient lay on that side, was thus explained. The tumour itself was very friable, and had to be almost entirely enucleated out of the broad ligament. Bleeding was very free, and was difficult to arrest on account of the softness of the tissues. The operation was consequently a very long one, lasting one hour and ten minutes. A drainage-tube was left in, and the patient was put back to bed looking wonderfully well. For ten days the lady was very ill, and gave Dr Wilson a great deal of anxiety; and the convalescence was prolonged by two attacks of bronchitis.

The rapid accumulation of the ascitic fluid and the fixing of the

colon, thus destroying one of the signs of the presence of peritoneal fluid usually insisted on in the ordinary text-books, are of interest.

The case contrasts in a remarkable way—in the condition of the patient, in the character of the operation, and in the convalescence—with another ovariectomy I performed in the neighbouring town of Gateshead on the 12th May. Here, again, the tumour had been discovered two or three weeks before operation; but in this case the young lady had been perfectly well; there were not any adhesions, and there was not any drawback after the operation. Nothing, to my mind, shows the absurdity of publishing at the present day long lists of cases of ovariectomy without supplying very full details, than a comparison of two cases such as these. In the one, we had a difficult and dangerous operation to perform on a woman whose life was not worth two months' purchase; in the other, we had to do with a perfectly healthy young woman, and an ordinary multilocular tumour without adhesions. It is the weak women who die, not those who have badly adherent tumours; and in my seven deaths out of one hundred and seventy cases of ovariectomy, the bad general condition of the patients had a good deal to do with the unsatisfactory results.

III.—THE PREVENTION OF EPIDEMIC DISEASE.

By F. P. ATKINSON, M.D., Surbiton.

It would appear to me that more attention is being directed at the present time towards limiting the dimensions of epidemics than getting rid of those sanitary defects which are the real cause of epidemic disease—or, in other words, notification and isolation seem to be the chief measures advocated for putting a stop to outbreaks of this character. Whereas it is an incontrovertible fact, that if every person who happened to be suffering from infectious disease could be isolated till all chance of infection was over, unless the original cause of the outbreak was clearly made out and corrected, very little time would elapse before the same method of quarantine would have to be brought into operation again.

The *Lancet* of 19th October 1889, in an article on Diphtheria Mortality in London, states,—“It is still too early to attempt to judge of the effect of this hospital isolation upon the prevalence of diphtheria and upon its mortality. We know, however, that in spite of this action the fatal prevalence of the disease has continued to increase.” What, I would ask, has caused the diminution of cholera in India? Has it not been a clearer knowledge and correction of the causes which bring about the disease? And have not our representatives at the various congresses on the subject distinctly pronounced against quarantine, as likely to lead to a false security? Correct the causes, they say, which bring about the

epidemic, and the disease will in course of time entirely disappear. And here I will ask, Has not this advice proved correct in the case of typhus fever? Some time ago I pointed out how defective, in a sanitary point of view, were the W.-Cs. and urinals at the various railway stations; and the *Lancet* not only agreed with the statement made, but stated that the station-masters' houses also required to be thoroughly inspected. I should be glad to know how many of these places have been examined and the defects rectified since these complaints were made.

A few weeks back it was pointed out how persons residing in the suburbs, and having chambers in London in an unsanitary condition, may be the means of causing outbreaks of infectious disease in the various districts in which they live; but this state of things will continue unless some law is passed requiring landlords to produce certificates of recent date as regards the sanitary condition of the houses they propose to let.

Again, it has been asserted that the road level sewer ventilators are a danger to health, unless all the sewers have a regular fall throughout, or there are in addition ventilating shafts carried up above the roofs of the houses, or some means are adopted of purifying the sewer emanations, such as Keeling's or Worthington's sewer and drain ventilator; and by way of proving they are dangerous, it is asked, Why are trouble and expense incurred in opening out entirely fresh communications with the crown of the sewers when it is so easy to untrap the gratings at the side of the roads? Dr Barry, in his recent investigations as to the causes of the outbreak of typhoid fever in the parish of St George's, Hanover Square, admits there were smells from the sewer ventilators and road gullies. He says there is little doubt the traps of many of the road gullies dried up, and allowed the exit of sewer gas close to the pavements. Dr Broadbent, moreover, in the course of conversation, has told me that he has been enabled to trace many cases of diphtheria to these road ventilators.

Another very likely method of spreading infection recently came under my notice, and a stringent law is required to prevent its being repeated. Two nurses were sent down from one of our chief nursing establishments to attend upon a case of malignant scarlatina, contracted in London. These and the patients were perfectly isolated during the continuance of the illness, and when death occurred, before the nurses left the infected rooms, I gave orders that each should have a carbolic acid bath, behind the sheet which was stretched across the passage, then wrap in a blanket which was to be thrown down outside the sheet, and finally dress in fresh clothes in another room away from the infected ones, the infected clothing being left behind in a previously prepared solution of carbolic acid. They had, moreover, strict orders not to go back behind the sheet afterwards. On going to see that all directions had been strictly

carried out before they left the house, I found that the one who had orders to go first had gone back to one of the infected rooms to converse with the other, and thus upset all the plans which had been previously made. Of course the process could not be repeated, and the nurse had to go to London, for all I know, with the germs of scarlatina clinging to her cloak and dress. On my complaining to her, the remark she made was very amusing, "Oh, sir, I think you are too particular, for we all get disinfected directly we get to the Home." Now, I assert that disinfection ought to take place before the infected house is left, not afterwards, and this ought to be insisted upon by the Home.

When we consider that the correction of these and numerous other sanitary defects is so utterly neglected; that no compensation is assured to those who may suffer loss of business or employment owing to enforced isolation; that the poorer classes prefer to consult chemists, in doubtful cases, to properly qualified men; that great difficulty often exists in diagnosing infectious disease, especially in the early stages, I think we have no business to expect much diminution in the number of infectious outbreaks.

By compelling every medical man, as is now ordered, to notify to the Medical Officer of Health every infectious case directly it comes under his care, a belief is generated that this officer has the outbreaks of disease directly under his control, and consequently less trouble is taken by the medical attendant in finding out the original cause; and this contention is justified by the fact (pointed out by Mr Biddle), that where dual notification exists the reduction of deaths from notifiable disease is less than in those places where there is no system of notification. Instead of lessening the interest of medical men in finding out the cause of epidemic outbreaks, there ought to be an increased stimulus given by—1st, increasing their responsibility; 2nd, teaching them the best means of investigating facts presented to them; and 3rd, making sanitary science a part of their medical training; or, in other words, every medical man should be taught to be a *private* medical officer of health. Lay down, I would say, stringent laws about the separation of the sick from the healthy, the time necessary for isolation in each disease, together with the means necessary for disinfection, etc.; impose penalties for neglecting to observe the same, but interfere as little as possible in the relationship between doctor and patient. Make the Medical Officer of Health a centre of reference, as it were, for all matters connected with the *public* health. Let all cases be reported to him by the parents or other persons responsible, so that he may be able to form an idea as to the progress of epidemic disease, and, if necessary, summon a meeting of the various medical men in the neighbouring districts as to the existence of some common cause, or as to the method which had better be adopted to stop it. The medical men also should be encouraged to apply to him for information as to the prevalence of certain diseases, or mention to him their views

as regards any suspicions they might have as to the cause of the outbreak. Were these suggestions put into force, I feel sure we should soon see a material diminution in the number of infectious outbreaks; and if fair compensation be assured to those who may suffer loss of business or employment owing to enforced isolation, the imposition of penalties for non-notification will be more or less a thing of the past.

Dr Thorne, in his evidence before the Royal Commission on Vaccination, said that isolation together with compulsory notification had in certain instances failed in the case of scarlet fever; and having regard to the fact that cases of adult small-pox occur which are so modified by previous vaccination as to be almost unrecognisable, it is not possible to conceive of any system of isolation, however strictly enforced, that could properly cope with small-pox in such communities as ours.

IV.—ON GENERAL CUTANEOUS ERUPTIONS WHICH ARE ACCOMPANIED WITH REDNESS AND DESQUAMATION; A COMMUNICATION MADE TO THE INTERNATIONAL CONGRESS OF DERMATOLOGY AND SYPHILOLOGY, HELD IN PARIS IN 1889, BY DR L. BROcq, PARIS.

Translated from the *Monatshefte für praktische Dermatologie* of 1st October 1889, by W. ALLAN JAMIESON, M.D., F.R.C.P.

IN addition to the classic febrile exanthemata, there are a large number of cutaneous affections, not very well known, which are characterized by an universal reddening of the skin, and a more or less abundant desquamation of the epidermis. Such cases have been described under the most diverse names, but particularly since the appearance of the works of Devergie and von Hebra, under the title "Pityriasis rubra;" Besnier calls them exfoliating erythroderms. We believe, in common with some other dermatologists, to have established that this group is not a simple one, but that it is substantially composed, in the first place, of the following three well-marked ailments:

I. Pityriasis rubra pilaris (Devergie, Besnier, Richaud), a disease well defined by its course, its symptoms, and its histology, which seems to us to approximate closely to psoriasis, and which various English and American authors have designated lichen, lichen ruber, or psoriasis. Moreover, this affection does not manifest in every instance, nor at all periods, the picture of an universal red and scaling eruption.

II. Pernicious lymphodermia of Kaposi, and probably various general varieties of mycosis fungoides, resembling eczema,¹ diseases

¹ An admirable illustration and a very good account of this form of mycosis or granuloma fungoides will be found in Dr Payne's recently-published work "On Rare Diseases of the Skin."—[W. A. J.]

which are yet very imperfectly known, but which we have begun already to learn to discriminate.

III. General exanthems of artificial origin, presenting redness and desquamation, chiefly evoked by drugs, either applied externally or swallowed. This class of scarlatiniform drug erythemas is very important, and the more I study these the more I am convinced that the greater number of the scarlatiniform, desquamating, recurring or non-recurring erythemata hitherto described, own an artificial source.

There are yet two other groups of general exanthems associated with redness and desquamation which are somewhat more difficult to distinguish than the foregoing, but which must, we believe, be dissociated from them.

IV. The acute and universal eruptions, which appear with tolerable frequency in course of an eczema, a psoriasis, much more rarely of a lichen planus. These cases are often rather difficult of diagnosis, but must nevertheless, in our opinion, be discriminated from the malignant exfoliating herpetiform eruptions, and from the other exfoliating erythroderms shortly to be mentioned. Their chief distinctions are:—1. That they are only casual phenomena in the course of an antecedent, well-defined disease, whose characteristic features can always be made out, if sufficient care be exercised; 2. That they usually have no regular cyclic course, are of shorter duration; 3. That, finally, in the large majority of instances, they are not completely diffused over the entire cutaneous surface.

V. Exfoliating herpetiform eruptions as constituted by Bazin. In weakly persons long affected with chronic skin diseases, as eczema, psoriasis, pemphigus, possibly also lichen planus and pityriasis rubra pilaris, one occasionally sees the eruption extend over the whole integument, change by degrees its aspect, lose the various peculiarities of eczema, of psoriasis, of pemphigus, etc., and become gradually transformed into a diffuse, intense, universal redness of surface, from which the epidermis scales off in the form of dry and abundant flakes. The general health may for long be relatively good. Periods of disturbance and fresh outbreaks occur, just as in the case of a man affected with old-standing heart-disease there may be many attacks of heart-failure. Eventually the patient emaciates, marasmus sets in, he suffers from uncontrollable diarrhoea, and finally succumbs to his complaint. In a word, the malignant exfoliating herpetiform eruption is a form of cutaneous cachexia, which follows upon an old-standing skin disease. It is distinguished from the simple acute exacerbations which develop in course of an eczema or a psoriasis, by its long duration, by an aspect so exceptional, that it is utterly impossible at the first glance to recognise the true nature of the original skin disease, by the intensity and dryness of the exfoliation, by the complete generalization of the eruption, and especially by the critical condition of the general health.

After consideration of all the conditions just mentioned, we are confronted with the so-called essential general exanthems associated with redness and desquamation, which do not correspond to the features as defined. For such the generic term "Pityriasis rubra" might, with some colour of accuracy, be retained. These are so far quite incompletely investigated. We are acquainted with numerous cases already published, or still unrecorded, which cannot in our opinion be classified for the present, and await explanation.

Be this as it may, we can meanwhile, we believe, accept the subjoined forms:

1. Erythema scarlatiniforme desquamativum, or benign, acute, exfoliating dermatitis.
2. General exfoliating dermatitis proper, or the subacute form.
3. The chronic form of general exfoliating dermatitis.
4. The grave variety of pityriasis rubra (Hebra).
5. The benign subacute pityriasis rubra.

I. *Erythema Scarlatiniforme Desquamativum, or benign, acute, exfoliating Dermatitis*.—We comprehend under this name, with Fereol, Besnier, and others, a form of pseudo-exanthem, characterized by a tolerably sudden onset, accompanied with pyrexia, simulating scarlet fever; by the eruption of an intense, uniform redness, which tends to spread rapidly over the entire body; by a dry, flaky, extremely abundant desquamation, consisting of scales which vary in size on different parts of the person, and which begins to manifest itself even before the redness fades. Recovery is usually complete in from two to six weeks. The hair and nails may be affected, and occasionally fall off. It may recur several times, and then the successive outbreaks seem to last a shorter time and to be less severe.

This brief description indicates that this cutaneous disorder is very different from those which have been already passed under review. It can only be confounded with the three following ailments:—(1), With the drug eruptions, and it is probable that most cases of recurring erythema scarlatiniforme desquamativum, hitherto described, are but artificial erythroderms; (2), with scarlet fever, from which it is discriminated by the intensity, the universal diffusion, the duration of the eruption, but particularly by this important point, viz., that desquamation commences before the redness has entirely faded;¹ (3), with general exfoliative dermatitis proper.

¹ None of these points of distinction can, however, be absolutely relied on. There are cases of scarlet fever undoubtedly genuine, where the rash is of the most intense vivid red, of universal distribution, which has not faded even on the seventh day of the disease, while desquamation has been known to commence as early as the fourth day. The phases of change in the tongue, the manner in which its coating forms and clears off, afford perhaps the most positive criteria for diagnosis, and such are commonly particularly well marked in examples of scarlet fever with a bright and copious rash. But with all this,

II. *General Exfoliative Dermatitis proper, or the subacute form.*

—This dermatitis is a general disorder, which seems not to be contagious. It has a cyclical course (*Stadium incrementi*, *St. acmes*, *St. decrementi*); it is accompanied by fever with evening exacerbations in its two first stadia. The commencement is sometimes sudden, more frequently insidious; one or several red itchy patches appear, which spread over the whole body in from two to ten days. During its acme the whole, or nearly the whole, surface is suffused with an intense red, may have a glancing and somewhat tense appearance, and is a little thickened. Several days after the redness has shown itself the epidermis becomes scaly, and from thence onwards exfoliation begins in the form of dry flakes, of varying size, with a glitter like mother-of-pearl, and arranged in an imbricated fashion. The hair nearly always falls off, partially or completely; the nails may in like manner be shed, at least they undergo alteration and show deep transverse furrows. At times and on different parts of the body, particularly in the neighbourhood of the flexures of the articulations, a more or less copious oozing occurs, usually giving off a peculiar stench, and then the eruption resembles an eczema. Bullæ as in pemphigus, pustules, boils, seborrhœa, epidermic cones round the hairs are frequently superadded. Itching is an almost constant symptom, followed by excoriations and weeping. The patients experience also with tolerable frequency an annoying sensation of burning and heat, and on undressing complain of chilliness. The mucous membranes may be involved. Thus we have observed conjunctivitis, coryza, stomatitis, superficial glossitis. The lymphatic glands are often swollen. As complications we would adduce carbuncle, superficial and deep abscesses, true phlegmon, eschars, deafness, iritis, joint affections, cardiac complications, partial paralyses, paraplegia, imbecility.

In benign cases the disease runs its course in three or four months; if more severe it needs five or six; if protracted by serious complications, or repeated relapses, a year even may elapse ere entire recovery takes place. It may end fatally in the third or fourth month, with the occurrence of diarrhœa, increasing exhaustion, or owing to grave complications, particularly on the side of the lungs. It may relapse or recur.

Exfoliative dermatitis proper is often difficult to recognise on the sickbed; nevertheless, its peculiar mode of commencement, its sudden manifestation, its pyrexial and cyclic course, unless when another skin disease precedes it (since, in our opinion, it can develop profoundly on the basis of another cutaneous affection), its duration extending over many months, the quite remarkable aspect of the eruption, which exhibits a brilliant

there is no one feature on which we can implicitly depend for the exact discrimination of scarlet fever from this erythema scarlatiniforme desquamativum during the eruptive stage.—[W. A. J.]

red associated with a certain degree of thickening of the skin, the character of the scales—dry, flaky, large, imbricated—the alterations in the appendages of the skin, finally, the possible complications,—these in their entirety impart to the disease an idiosyncrasy which enables us to distinguish it from other erythroderms. The acute outbreaks which appear in the course of an eczema or a psoriasis differ from it in their details, in the absence of a feverish cycle and of a well-defined form of disease; by their aspect, in short, since it is nearly always possible in such cases to discover some traces of the original affection. The exfoliative herpetiform eruptions have not the same order of phenomena. Erythema scarlatiniforme desquamativum is *the* complaint which approaches most closely to exfoliative dermatitis, and to such a degree that one might, with a certain amount of propriety, consider it as an exfoliative dermatitis of less extent and of shorter duration. The same would apply to the benign and in some measure to the abortive form of exfoliative dermatitis. There are, besides, cases of erythema desquamativum scarlatini-forme of longer duration, with loss of the hair and nails, which constitute transition forms between the slight varieties of exfoliative dermatitis and the ordinary kinds of erythema scarlatini-forme desquamativum.

III. *The chronic form of Exfoliative Dermatitis.*—In addition to the typical or common form of exfoliative dermatitis, which I described in 1882, I am of opinion that there is also a chronic variety. The following case, for which I have to thank Professor Fournier, with whom I saw it in 1883, affords an admirable example. It appears to me to fix the chief clinical characters of this form of disease. On the 12th May 1883 there presented himself in No. 70 of the wards of St Louis a man aged 50, a saddler, who had had, so far as he knew, no previous acquired or hereditary ailment. The eruption from which he suffers commenced in the hams three years previously with simple itchiness. He scratched himself; redness, oozing, and crusts appeared; the complaint thus came to resemble an eczema. After being for fourteen months limited to the calves, it began to extend gradually over the thighs, the trunk, and latterly the head. No vesicles ever formed or oozing occurred on the body or face; uniformly from the commencement there was only dry redness and scaling.

The patient is tall, strong, and previously enjoyed excellent health. He has a good appetite, never suffered from diarrhoea, and all the functions are normal. The entire body, including the palms, soles, and scalp, is suffused a bright red. The integument is not sensitive to pressure, but itches, and is somewhat thickened; it is invested with large, dry, pearly, translucent flakes, some of which on the trunk and extremities reach a diameter of from three to one and a half centimetres. Those on the face and scalp are smaller. They are attached by one of their larger sides, are else-

where free, and while on the upper arm they are arranged transversely to the axis of the limb, on the forearm they lie parallel to it. They do not assume an imbricated arrangement, but there exist between them spaces of varying size, in which the skin with its bright red is visible. Every morning a large number of flakes can be collected from the bed. On the back of the hand and dorsum of the foot there are cross fissures of a brownish-red hue, which are dry, pretty deep, and painful. From the date of the Crimean war he had been bald on the crown, but two months since the hair on the sides of the head commenced to fall off, and the same thing has happened to the beard, the eyebrows, the eyelashes, and elsewhere. The nails are thickened, brownish-yellow, are raised from their bed by irregular masses of horny material; they are corrugated and have white streaks through them; they have lost their lustre, and seem to scale off. The inguinal and axillary glands are swollen, hard, but painless. The urine contains no albumen, and there is no fever.

On the 23rd May he became slightly feverish, and a kind of inflammatory eczematous eruption appeared. The scalp, the face; the lower limbs swelled and wept a little. By the 29th May all these parts had resumed their usual aspect; but the œdema of the left leg and foot persisted, gave rise to pain, and prevented walking. In June a good many subcutaneous abscesses formed. It was noticed in August that the integument was somewhat thickened and stiff, but on the whole exhibited almost the same appearance as when he entered the hospital.

From time to time slight feverish attacks came on, particularly towards evening, the thermometer rising to 101.1° , the pulse to 108. He lost his finger-nails, and had some amblyopia. Pigmentation increased with the duration of the disease. In November his condition improved. The skin was less thickened, the desquamation and itching were less pronounced, the feet were less swollen and less sensitive, so that they could once more sustain the weight of the body, and he left the hospital. The desquamation, the redness and infiltration of the skin vanished towards the end of January 1884, but the brown pigmentation persisted till the beginning of 1885. Then, too, he completely recovered his health, the deafness and amblyopia were gone, the hair everywhere had grown again, and the nails, with the exception of that on the right index finger, which was quite destroyed, had been restored. Since then he has continued free from any skin affection, his health is perfect, he has regained his former strength, and I saw him on the 14th July 1889 in robust health.

The first idea which would occur to one after perusal of this case is, that it was originally an eczema, which subsequently was complicated with an acute general eruption of the same disease, or with a desquamative dermatitis. But I do not believe that such an explanation is the correct one. I do not hold the supposition

proved, that in the first or eczema-like period the eruption was a true eczema, for various skin affections can for long simulate eczema before they disclose their real character. As an instance of this I need only mention mycosis fungoides. On the other hand, one cannot convert this erythroderm into an acute eruption developing on the basis of an ordinary eczema, for the duration of the complaint was much too protracted, its diffusion too general, the constitutional and local symptoms too severe. It is impossible, it seems to me, to regard it as an exfoliative herpetiform eruption occurring in an eczematous subject, for the eruption in question is the first skin manifestation which the patient ever had, and the characteristic feature of an exfoliative herpetiform eruption is, that it develops again and again in individuals who are suffering from an inveterate cutaneous complaint.

Further, I am not inclined to regard this case, as assuredly some foreign dermatologists would, as an ordinary desquamative dermatitis developing out of a pre-existing eczema. It appears clear to me, from the steady progress of the disease, that it was the same skin disease from beginning to end, which had its stage of rise, acme, and decline; and, on the other hand, I cannot admit that, if here an exfoliative dermatitis as a new disease had been implanted on the foundation of a pre-existing eczema, then after the disappearance of the dermatitis, were such the case, the patient should never have had any evident manifestation, or at the least a fresh outbreak of his eczema. Now we know for certain that since the beginning of 1884 he has never had the smallest eruption.

I think, therefore, that we must look upon this case as manifesting the chronic form of exfoliative dermatitis. We find here—(1), a period of commencement, which is very protracted, and during which the ailment simulates eczema, and advances gradually with great tardiness; (2), a period of acme, which in like manner is very long, and during which the objective characters are those of a typical exfoliative dermatitis—intense universally diffused redness and infiltration of the skin, which at certain points is even cedematous, continuous and very abundant desquamation in large flakes, apyrexia or slight feverish attacks, interrupted by intervals without fever, falling-off of the hair, disease and loss of the nails, glandular swellings, complications such as abscesses, amblyopia, deafness; (3), finally, a period of decline or involution, in which the desquamation and redness vanished by degrees, leaving some brownish pigmentation, which in its turn slowly faded away. The entire duration of the complaint extended over several years.

IV. *Pityriasis Rubra Chronica* (Hebra).—Hebra, as is known, has, under the name pityriasis rubra, described a disease which begins in a gradual and progressive manner, as bright red, scaly, dry patches, with the tendency to extend step by step, till in course of some months or a year or two it has invaded the whole body. It is then characterized by a redness of varying intensity,

which is most frequently rather dusky, and on the legs even livid; by incessant desquamation of fine bran-like scales, or of moderate-sized flakes, which never reach the diameter of those in exfoliative dermatitis. The sensations which annoy those affected are especially persistent chilliness. Itching is in most instances moderate or absent; yet some authors declare it may be of such intensity that it cannot be allayed, and constitutes the most fearful torture. It is questionable if some of these very itchy cases, of which we have seen examples, should not rather be regarded as varieties of chronic exfoliative dermatitis.

Pityriasis rubra chronica manifests no remissions. It may remain for long stationary, without excessively annoying the patient; but after some months or several years it ends fatally. The skin becomes dry, tense, and apparently cedematous; the redness assumes a cyanotic tint. Then commences a marked process of retraction or atrophy of the integument, which becomes attenuated and so tightly drawn over the subjacent parts that movement is impossible. The hair becomes thin and falls off, the nails are brittle, vitreous, and weak, or thickened and friable. The individual by degrees turns cachectic; ulcers, sloughs, and gangrene occur. At length death ensues from marasmus, often accelerated by some complication, as tubercle of the lungs, pneumonia, etc. It is almost unnecessary to notice how strongly this array of symptoms contrasts with those presented by the other erythroderms which we have mentioned. The long duration of pityriasis rubra chronica—its slow, insidious, apyrexial commencement, the relative minuteness of the scales, the slight infiltration of the skin, the comparative immunity of the cutaneous appendages during the whole first period of the disease, finally, its so specific development,—all these prominent peculiarities sharply distinguish it from the exfoliative dermatites, as we understand these.

V. *The subacute or benign form of Pityriasis Rubra.*—In conclusion we would inquire (but without being able to make any definite assertions with respect to this, since we have for such neither sufficiently positive nor sufficiently abundant evidence), if we may not admit the existence of a fifth form, the pityriasis rubra subacuta. In 1884 we published a short note on this from a case of Professor Vidal's, and from some others which we found recorded elsewhere. This fifth variety of essential erythrodermia is distinguished from exfoliative dermatitis by its finer desquamation, by the immunity of the cutaneous appendages, and by the maintenance of good general health; and from pityriasis rubra chronica by its short duration and its mildness. It is thus a question whether one ought to regard this as a benign form of Hebra's type, or possibly as an abortive form of exfoliative dermatitis, rather than as a distinct variety.

But in concluding this communication we cannot sufficiently repeat that we have here but endeavoured to define the limits.

In order to be able to shed light on these obscure questions of the desquamating erythroderms, it is necessary henceforth to collect material with the most painstaking accuracy, to gauge temperatures, to examine urine and scales, to note the various phases of the disease, the shade of redness, the infiltration of the skin, the size and shape of the scales, the condition of the annexes, the sensibility, the lymphatic glands, the several complications, the course of the ailment, the relapses, the recurrences; to institute, when possible, biopsies and histological investigations. Only when a number of cases so observed have been gathered together will it be practicable to form well-defined groups and to create an enduring piece of work.

V.—THE DEPARTED AGE OF BLOODLETTING.

By a PROVINCIAL M.D.

THE number of those whose professional life, or whose memory, extends back to the days when phlebotomy was rampant, must now be comparatively small, and in a few years more at longest they will have become an *extinct genus*. To such of them as are still in harness, doing daily work as healers of the sick, and who are able to conjure up the beliefs and achievements prevalent in the profession between fifty and sixty years ago, it must prove refreshing and enjoyable to peruse the admirable address delivered by Professor Sir Douglas MacLagan at the recent opening meeting of the Royal Medical Society. The facts related by the learned Professor in regard to bloodletting are true to the letter, and the picture drawn by him of our professional forefathers, and their energetic *modus medendi* when they encountered a genuine case of pneumonia, is well fitted to leave a lasting impression on the susceptible minds of "the young and rising generation."

Perhaps it will not be deemed inopportune, nor, I trust, egotistical if, being able to look back over nearly the whole period embraced in the Professor's review, I venture to subjoin to his lucid statements a few reminiscences of phlebotomy from my own personal observation and experience. There has been of late not a little discussion and controversy regarding the good or evil pertaining to the old and now generally discarded apprenticeship system, by which a young man aspiring to enter the ranks of the Medical profession was initiated into the daily duties of his calling. There were, doubtless, both advantages and disadvantages connected with the way in which three or four precious youthful years were thus spent, and I do not at present attempt to hold the balance between them. It was my fortune, or misfortune, as the case may be regarded, to pass through the then orthodox *régime* of a three years' apprenticeship; and in the ordeal to which I was then subjected, while there was much for which I still cherish gratitude, there was not a

little fitted to cause unavailing regret. It was, on the one hand, no small privilege at such a formative period in one's life and history to see the daily professional work, and to receive the wise counsels of one who was not only an eminently shrewd and sagacious man, but a widely known and deservedly esteemed practitioner. But, on the other hand, it was inevitable, in the nature of things, that much valuable time was wasted which should have been exclusively allotted to preliminary studies; and that while much was learned, much also had afterwards to be *unlearned*, which is always a hard and difficult task. This, however, by the way.

Among the beliefs which dominated the practice of my esteemed master was his strong faith in the virtues of bloodletting. It was in his eyes a remedy of sovereign efficacy. As well might the mariner attempt to traverse the ocean without the guidance of the compass, as the medical practitioner attempt the treatment of disease without the service of the lancet! He had been brought up at the feet of the Gamaliels of the Edinburgh Medical School toward the end of the first decade of the century, and most faithfully and unhesitatingly he carried out in practice the doctrines which they taught. At his patients' houses, and at his well-frequented surgery, the vital fluid might be seen any day flowing *pleno rivo*. And all this was but an illustration of what then universally prevailed. The popular mind shared in the medical belief as to the efficacy of bloodletting.

Many seemed persuaded that it was not only essentially necessary in the treatment of all acute diseases, but an expedient every way advantageous for the preservation of health. Not unfrequently farm servants and others came to the surgery *asking to be bled*—their blood being deemed by them either too hot, or too abundant, or in some other way abnormal! One can now only hope that such hale and robust specimens of rustic humanity suffered no special injury from having their wishes so readily and so amply gratified!

To youths fresh from their Cæsars and Virgils, and buoyant with the hilarity and excitement of the playground, it was at first a somewhat trying ordeal to be confronted with such sights of blood, and with the scenes of *deliquium animi* which were their familiar sequel. But all this was looked upon as an important part of their training—a needful preparation for future professional life. Especially so was the accomplishment of being able to tie up an arm for venesection *secundum artem*, and skilfully and adroitly pass the lancet into the vein! Both master and pupil were gratified by this achievement; the medical *pons asinorum* had been passed, and an important pledge of future success given.

A few years glide swiftly by, and new scenes and new surroundings present themselves.

The routine and monotony of a surgery in a country town are left behind, and the stimulus and instruction of Glasgow Medical School come in their room. On the strange sense of novelty which a youth

feels on his first contact with life in a great city and in a great school I need not dwell. It is a hackneyed theme. In one respect, however, I met with no novelty in taking my place on the benches of the Medical School of the great western city, viz., in the views which were propounded and enforced, *ex cathedra*, as to the efficacy of venesection in the treatment of pneumonia. No uncertain sound was given forth on this point. I still have in my possession notes taken in the Practice of Physic class in 1834-35 in the extra-mural school—and the lecturer, I may remark, was allowed by his professional brethren to be a sound and judicious practitioner, as well as a zealous and able teacher. It may interest the present generation if I present in a few sentences the instruction which that gentleman gave to his class as to the treatment of pneumonia.

"The principle," he said, "which should guide us in the treatment of pneumonia is the same as in other inflammatory complaints. Bleeding is allowed to be the remedy chiefly to be depended on. It is most proper in the first stage of the disease, or that of obstruction. The quantity necessary to be taken will vary according to the strength of the patient, the age, sex, etc. When the patient is robust and healthy, 24 to 30 ounces may be abstracted at the first bleeding, and the operation may require to be repeated once or twice in twenty-four hours after, for the great object is to make a decided impression on the disease at the outset—therefore the bleeding must be large at first, and its effect may be manifested either by the breathing becoming easier, the pulse coming down, or a state of syncope being induced. The pain and dyspnoea are generally relieved by the first bleeding—but these will very often return in a few hours, and then the venesection must be repeated. In delicate subjects, and such as are predisposed to consumption, 12 ounces will have as much effect as 24 to 30 ounces where the patient is robust and strong. Symptoms of weakness coming on at first are not to deter us from the use of the lancet, these being only apparent, and arising from the violence of the disease and the state of congestion; the weakness at first is owing to oppression, and will give way to bleeding."

"*Scriptæ literæ manent*"—My old note-book furnishes unequivocal testimony to the teaching then given in our Medical Schools, and which continued down to comparatively recent times, and of course to the beliefs on which that teaching was founded. What I have now given as the *bona fide* utterance of my esteemed teacher would, at the time, throughout all our Medical Schools have been accepted as the expression of sound pathology, and as pointing the pathway to successful practice.¹ No Bennett had as yet arisen, like a second Luther, to assail the "tradition of the fathers," and to dispel the cherished day-dream of many generations.

One passage in my personal experience in connexion with this subject I trust I shall be pardoned for relating. An attack of catarrh, caught at the close of my first session at classes, developed in my homeward journey into an acute attack of pneumonia, with

¹ In proof of this averment it may be enough to cite the published contemporary opinions of two well-known medical authorities, the one in Edinburgh, the other in London. Dr John Mackintosh of the Edinburgh Extra-Mural School, speaking of the treatment of pneumonia, said, "The lancet is to be used freely;" and Dr Mason Good, London, laid down the rule of practice in terms equally emphatic, "The bleeding should be prompt and copious."

which and its *effects* I was laid up for some weeks at the house of a relative in the neighbourhood of Edinburgh. I had the prompt attendance and the unwearied attention of the medical practitioner resident in the district, and I shall never forget the kindness he showed me. He was a staunch believer in the virtues of venesection, and I was in no condition to question his belief, even had I been disposed to do so. His first visit left me *minus* three cupfuls of blood; and twice within the next two days a similar depletion, each equal in amount, had to be submitted to. No doubt the worthy gentleman considered that by such heroic measures he had extinguished the disease—but so, *very nearly*, had he the patient! More than half a century has passed away since then, but a vivid recollection remains of the utter prostration which followed the attack and *its treatment*, and which it required many months of rest, country air, and careful nursing to remove. I still cast an occasional glance at the *cicatrices* over my right median cephalic vein. They possess quite an *archaic* interest, and seem to unite the living medical world around me to the long distant past.

Although thus brought within almost measurable distance of falling a victim to phlebotomy, my faith in this great and popular therapeutic resource suffered no abatement. For many years after I was fairly launched in the field of practice I was quite as free, perhaps at times as heroic, it may be as *rash*, in the use of this remedy as others around me. How, indeed, could it be otherwise? Members of the profession far and near, distinguished as well as obscure, continued loyal to the teaching and practice current in their early days, and I need not blush to acknowledge that I followed suit. Gradually, mutterings of scepticism began to be heard in regard to the hitherto accepted doctrines on bloodletting; and as years rolled on dissentient voices became louder and more general, at length culminating in the famous "Change of Type" controversy in the Edinburgh Medico-Chirurgical Society, which may be said to have sealed the doom of the lancet, and dethroned it from the position of eminence and power in the domain of therapeutics which by universal assent it had held for ages. But it was only step by step, and with much fear and doubting, that many of the older practitioners were brought to relinquish beliefs which had gathered so many cherished associations around them. Nor need we wonder at this. Had they not been taught by eminent men in their early days the high value, yea, the necessity of venesection in acute inflammatory diseases? And had not this great remedial agent come down to modern times, not only unchallenged as to its efficacy, but accredited by the suffrages of generations and centuries? Assuredly beliefs, so authenticated and so venerable, could not be cast aside in a day, like a worn out garment. It was no easy task to—

"Ring out the old, ring in the new,
Ring out the false, ring in the true"—

keeping the mind continuously open, and the senses awake, for the admission of juster views both as to pathology and practice. What those juster views are Sir Douglas Maclagan has summarized in his excellent address. And he has clearly indicated how the great controversy on bloodletting, in its course and final issue, illustrates and emphasizes the ancient adage—“*Magna est veritas et prevalebit.*” But while the Professor narrates and commends the wonderful revolution effected in the opinions and practice of the Medical profession in reference to venesection in pneumonia during the last forty years, it is especially to be noticed that he does not close his address without entering his *caveat* against the total abandonment of this remedy in the treatment of disease. And the junior members of the profession especially, and those looking forward to joining its ranks, in their ambition to be wiser than their fathers, would do well to remember and ponder his words. “Are we sure,” he asks, “that in some other forms of disease we do not unduly neglect bloodletting I hesitate not to say that there are cases with marked apoplectic phenomena where we would certainly not be wrong in having recourse to venesection.” In other words, Sir Douglas Maclagan believes that there is still a field—limited though it may be—where the lancet may assert its ancient claim to professional confidence and esteem. With due deference I would supplement the concession thus made by expressing my firm belief that for a genuine case of puerperal eclampsia there has yet been found no remedy so trustworthy and efficacious as a prompt and free abstraction of blood.

“Forewarned, forearmed.” Either of the formidable attacks just named is a possible emergency any day; and because it is so, and because, further, I dislike being altogether divorced from the mementoes and associations of the distant past, I continue to carry about with me the duly furnished silver lancet-case which has been the companion of my daily rounds for well-nigh fifty years.

VI.—ON THE TREATMENT OF GANGRENOUS BOWEL IN STRANGULATED HERNIA.

By FRANCIS M. CAIRD, F.R.C.S. Ed., Assistant Surgeon, Royal Infirmary, Edinburgh.

(Read before the Medico-Chirurgical Society of Edinburgh, 20th November 1889.)

WHEN about to discuss the treatment which should be carried out in a case of strangulated hernia with gangrenous bowel, it is well to note the more usual sites and extent of the gangrenous areas. We may do this by observing the state of the bowel when exposed during operative interference, or by the examination of museum preparations. Femoral hernia, more especially, affords us an opportunity of inspecting good examples of this condition.

In regard to the question of position, it would appear, from a study of the preparations and cases, to which I have had access,

that we may find changes of a gangrenous nature situated as follows:—First, on opening the sac and within it, a projecting knuckle of bowel may be met, gangrenous on its free border. Second, in dividing the constriction at Gimbernat's ligament, a similar condition may be found immediately beneath the point of stricture. Third, on pulling down the dilated vascular gut from out the abdominal cavity, it may be found damaged above the entrance into the sac. Fourth, but rarely, there may be a gangrenous patch on the collapsed portion within the abdomen beyond the sac. It seems that necrosis may occur at any one, or even at all of these points.

If we now remove the bowel, and spread it out so as to expose the gangrenous areas more clearly, we note that, if several be present, they occupy the positions already indicated, and are separated from each other by a distinct interval of comparatively healthy tissue. In regard to the extent of the necrotic change, we may note that the area which lay beneath the constriction is more or less annular in form. It resembles a signet ring, the bezel towards the free convex border of the gut and the ring, more or less complete, narrowing and tailing off towards the mesentery, as in Plate III. fig. 1.

The patches at the remaining sites are all more or less oval, run in the long axis of the bowel, and lie opposite to the mesenteric attachment. Their extent will naturally vary with the duration and circumstances of the hernia, Plates II. and III.

As to the treatment of the constricting agent, when one meets with gangrenous bowel in a hernial sac it is evident, from what has already been adduced, that it must be divided in order to judge of the condition of the bowel beyond. And in cases where the bowel has already ruptured, a stream of antiseptic lotion may be employed to thoroughly wash away faecal extravasations, and to disinfect while the stricture is divided.

There is now a choice of treatment. If the gut has not yet actually given way, the surgeon may return it, hoping that within the peritoneal cavity there is still a remote chance of its recovery. Or, again, he trusts to the local paralysis preventing it from straying far from the wound, he hopes that local adhesions and effusion may shut off the damaged gut from the peritoneum, and that if, after all, death of the part should take place, that in this fashion general infection may be prevented, and at the outside only a faecal fistula ensue. Again, he may prefer to stitch the gut to the wound, thus forming an artificial anus. Or, again, he may venture to carry out the more heroic resection of the gangrenous gut, and by suture restore its continuity.

I would venture to add yet another method which, under certain circumstances, might prove highly serviceable. It is, that in place of making an artificial anus, or practising resection, we should close the rupture in the gut, or prevent its formation by inverting the dead or dying tissue, and suturing the sound wall of

the bowel over it. The invagination thus carried out will be at the expense of the circumference of the gut, and must, of course, leave a somewhat diminished lumen.

The gut should be withdrawn as represented in Plate II. figs. 1 and 2, and closure effected as in Fig. 3, by means of Lembert's suture. The needle must enter healthy tissue, and emerge in tissue that is fairly healthy, and the stitches should begin above, and end beyond the gangrenous area, just as in suture of a ruptured bladder. The invaginated portions subsequently slough, and are passed by the natural channels.

The method is chiefly applicable to the small gangrenous areas which lie in the long axis of the gut. It might also save resection in bullet and other wounds of the intestinal tract.¹ It can be carried out rapidly, there being nothing to cut away, and therefore no hæmorrhage to control. The stitching is rendered much less troublesome by the use of Dr J. M. Cotterill's intestinal needles.

We have, however, to ask what evil results may follow from such treatment. One dreads the formation of a stricture. However, in the case of suture in the *longitudinal* axis of the gut, where not more than one-third of the circumference is included, one would probably have little to fear on this score. Little or no contraction is likely to follow after the primary suture. And, again, if we are dealing with the small intestine, the fluid character of the contents is not likely to give rise to much trouble, even with a somewhat narrowed lumen. On the other hand, where there is a damaged *ring* of tissue, general contraction giving rise to a marked stricture often ensues. Such a ring of dying tissue is figured on Plate I. fig. 1, which shows the appearance of a piece of gut pulled down after division of the stricture in a femoral hernia. The damaged area resembled a piece of wet wash leather.

Fig. 2, Plate IV., shows what may follow on the reduction of such a damaged gut. The patient suffered from strangulated hernia, and made a favourable recovery from the operation. Progressive symptoms indicative of stricture followed, interference was not permitted, and seven months after the original operation the preparation was obtained. Such an event is indeed to be dreaded. But are we here more justified in looking for the formation of stricture after invagination of the necrotic area and suture than after an ordinary resection? Our hope is that the invaginated portion may at once slough and be cast off; that the suturing may indeed complete the necrosis, by cutting off the blood supply of the invaginated part; and that as the slough is cast off a natural cure, similar to that seen occasionally in intussusception, may be brought about. We hope, indeed, for a result similar to that in Plate V. fig. 1, where we see how very little diminution has been wrought in the lumen of the dog's intestine after the application of a ligature which subsequently passed per anum.

The method described, then, is an attempt to apply Nature's

¹ See Parke, *Gunshot Wounds of the Small Intestine*.

teaching. To what extent we may venture to diminish the lumen of the bowel can only be learned by vivisection or the study of cases in man. In every case a careful selection of some one of the various plans of treatment must be made, and this can only be determined by the condition of the patient generally, the local state of the parts, and the resources of the surgeon.

The following are a couple of cases in which suture of the gangrenous gut was followed out:—

Mrs M. was seen by Dr Alexander Edington on a Sunday morning, suffering from a strangulated hernia, which had been "down" since Friday. Taxis having proved unsuccessful, herniotomy was carried out with the aid of Dr Edington and Dr Milligan. The sac contained straw-coloured fluid, and the gut was not deeply congested. On division of the constriction at the neck, and on pulling down the bowel, a couple of rents came into view, with ragged, everted edges, as represented on Plate II. fig. 1. There was no faecal extravasation. The parts were invaginated and sutured with catgut, as described, under antiseptic precautions, the bowel returned, and the wound closed. The patient made a good recovery, and since that date has enjoyed good health, and the intestinal functions are perfect.

No other suitable case for suture presented itself until 1889, when I saw at her own house Mrs C. She had a pinched, worn look, suggestive of peritonitis. There was continuous faecal vomiting. The home arrangements not proving suitable, she was removed to the Royal Infirmary, and there operated on. The sac contained brownish fluid, a tag of omentum, and a knuckle of gangrenous bowel, Plate II. fig. 2. The gut was deeply congested. An ovoid longitudinal area opposite the mesenteric attachment was greyish white, flaccid, and lustreless, but had not yet given way. Gimbernat's ligament was nicked, the gut pulled down, the omental tag returned, and the dying area turned inwards, sound tissue being brought to sound tissue by interrupted sutures, as in Plate II. fig. 3. Since the inverted tissue in which the sutures were planted seemed in a very doubtful condition, and since the bowel contained fluid contents, it was deemed advisable to apply a second layer of continuous Lembert sutures over all. The finest Chinese silk was used, and rendered still finer by splitting it up into fibrils, so that the sutures were as delicate as gossamer. This procedure allows one more readily to thread Dr Cotterill's needles.

No attempt was made to attain a radical cure. Horse-hair sutures were inserted into the lips of the wound, but were not tightened. On the third day, all having gone well, the horsehair was tightened and the wound was closed. The patient did well, passing wind about thirty hours after operation.

At the end of three weeks she was about to be sent home, when she complained of much morning sickness. She was in the third month of pregnancy. The sickness and nausea continued with intermissions. She had attacks of vomiting. At no time was

there any obstruction—wind always passed freely. The bowels required an enema to clear them. There was at no time any abdominal tenderness, or pain, or swelling in the region of the cicatrix. The abdomen was always lax, and moved freely during respiration. The unsatisfactory state of affairs continued, and it was thought advisable to explore, when she suddenly had an attack of diarrhoea, passing most offensive motions; the heart's action, always weak, became very irregular, and she sank four weeks after the operation.

At the autopsy there was not the slightest evidence of peritonitis. A loop of ileum was fixed to the internal aspect of the crural ring, and crossing it anteriorly, attached to the same point, lay the tag of omentum which had been seen during the operations. This had evidently acted as a constricting band. The gut was intact. On removal, the bowel was laid open. A pyloric-like ring of constriction, which could only admit the little finger, showed the site of the operation (Plate I. fig. 2). Immediately above it the mucous membrane was distinctly ulcerated, and thus the diarrhoea was accounted for. The heart showed marked fatty degeneration.

It is noteworthy that we found here a short localized general contraction, instead of a lumen only narrowed slightly for about an inch in length. The success of the first case was, however, so marked that one felt encouraged to carry out similar treatment in the second instance, although the unfortunate result shows that the vitality of the gut had been too greatly lowered. It is probable that a reactionary congestion and inflammation set in beyond the range of the sutures, and that the subsequent cicatrization of the effused products, more especially in the infiltrated sub-mucous tissue, gave rise to the contraction. Contraction may occur with great rapidity. In the museum of the Royal College of Surgeons there is a preparation showing a strictured gut which barely admits an ordinary lead pencil, and which was found formed nine days after the reduction of a strangulated femoral hernia.

My thanks are due to Prof. Chiene, who supplied me with preparations, and in whose wards Case II. was treated. I am also indebted to Prof. Sir William Turner, Curator of the University Museum, and Mr C. W. Cathcart, F.R.C.S., Curator of the Museum of the Royal College of Surgeons, as well as to other friends, for the use of preparations and for kindly assistance.

ILLUSTRATIONS.

PLATE I.

Fig. 1.—From a case of femoral hernia, showing the ring-like gangrenous area formed at the seat of constriction.

Fig. 2.—Posterior view of preparation from Case II., showing—*a*, colon; *b*, ileum; *c*, omental tag; *d*, parietal peritoneum; *e*, part of abdominal wall; *f*, reflected wall of bowel, exposing the pyloric-like constriction into which a probe, *g*, has been passed.

PLATE I.



FIG. 2.—From a case of strangulated Femoral Hernia, showing the ring-like gangrenous area formed at the seat of constriction.

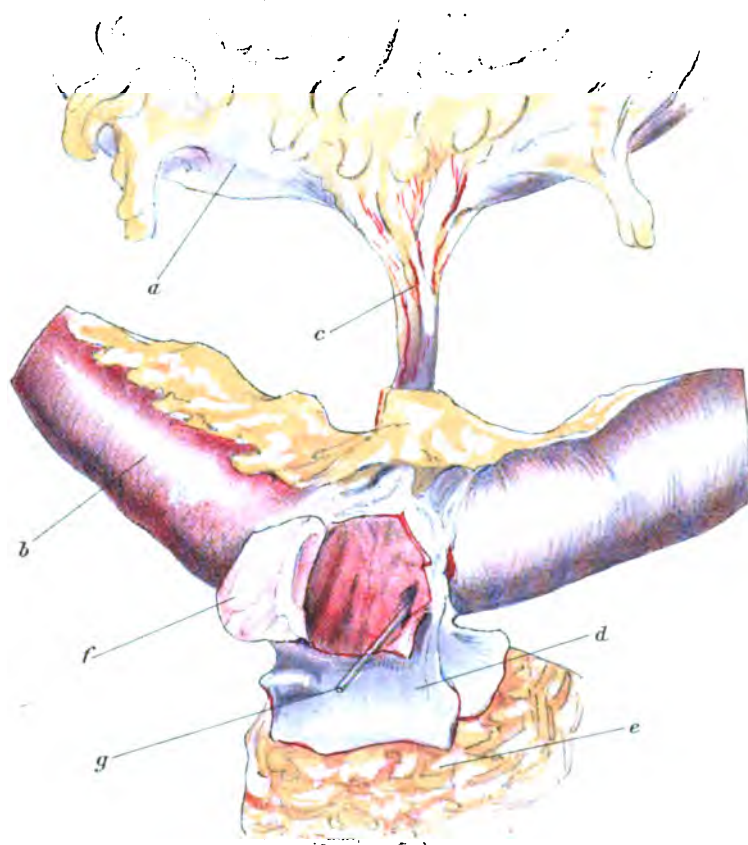


FIG. 2.—Posterior view of preparation from Case II. *a*, Colon. *b*, Ileum. *c*, Omental tag. *d*, Parietal peritoneum. *e*, Fat of abdominal wall. *f*, Reflected wall of bowel exposing the pyloric-like constriction into which a probe, *g*, has been passed.



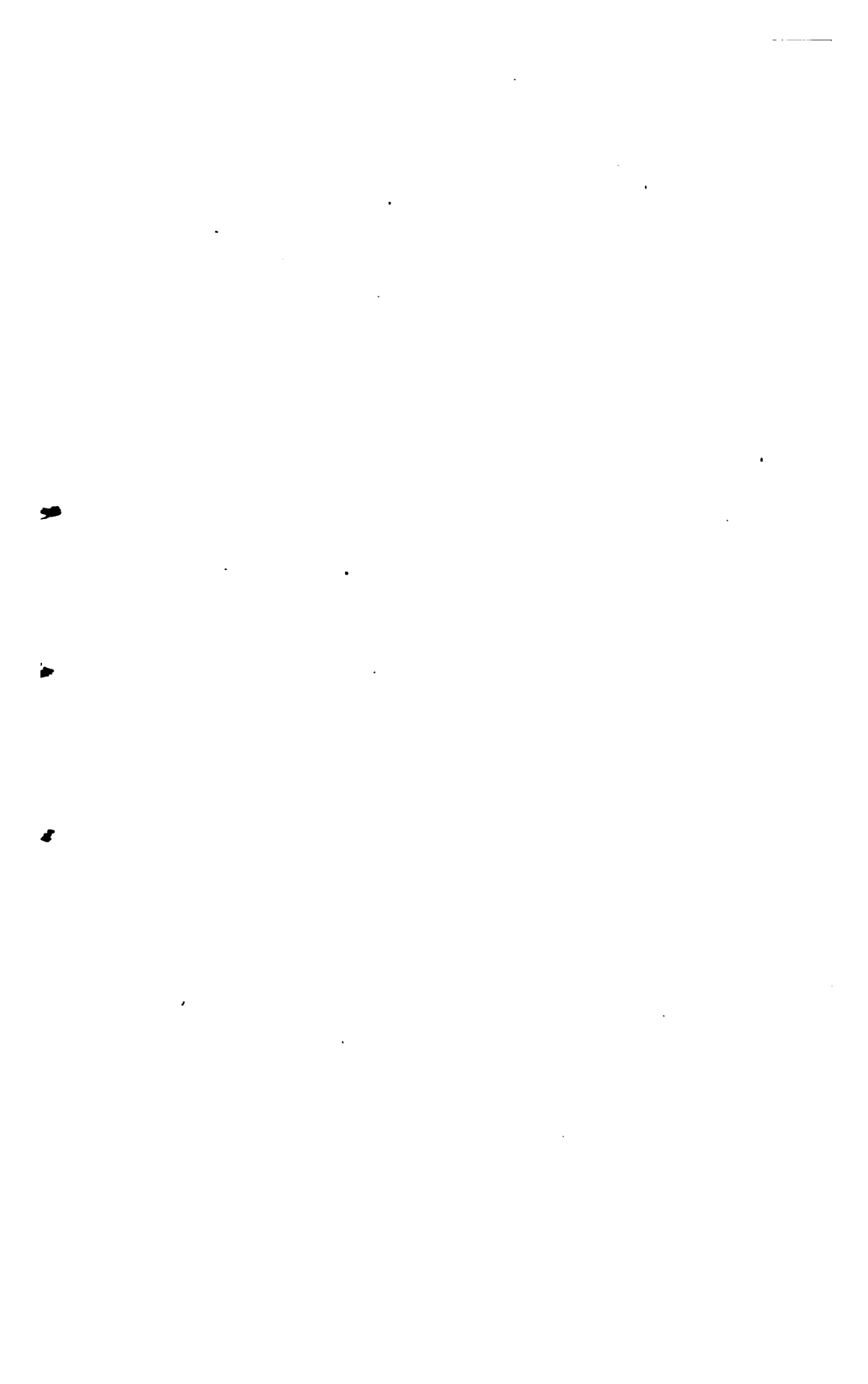


PLATE II.

FIG. 3.—Lembert's sutures so passed as to secure invagination of the ruptured and gangrenous area, and approximation of the more healthy area beyond.

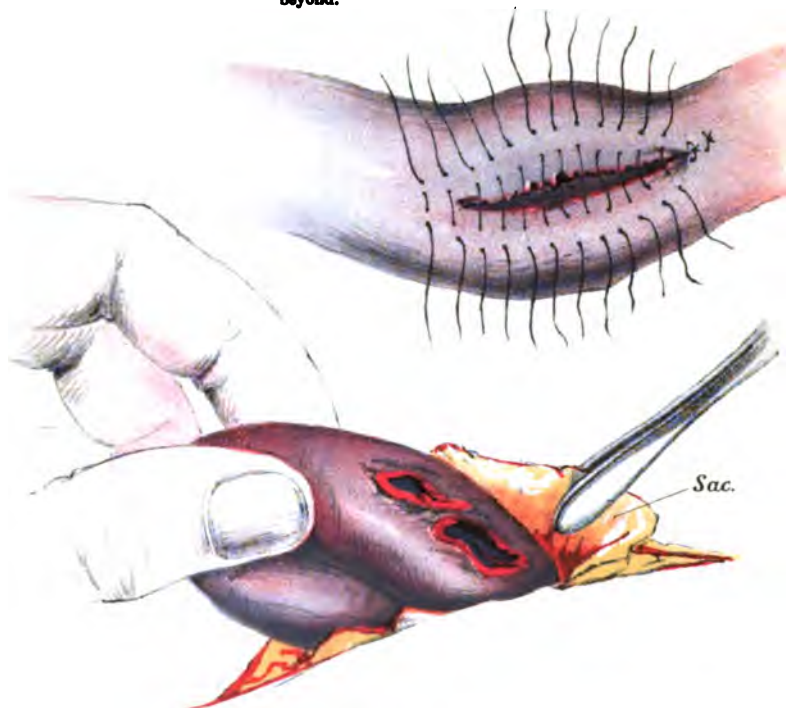


FIG. 1.—Aspect of the bowel in Case I., after division of the stricture and pulling down of the gut. The bowel is seen to have given way at two points, one at the constriction and one above it.

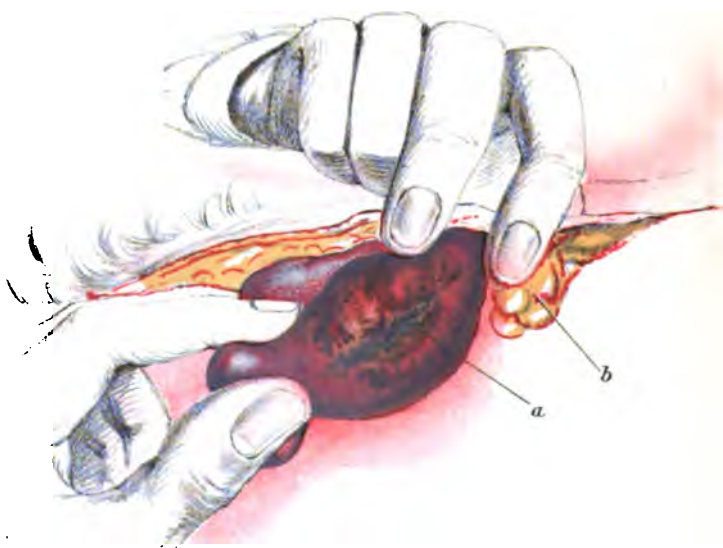


FIG. 2.—The gangrenous bowel which has not yet given way as seen in Case II. Gangrenous area *a*, omental tag *b*.

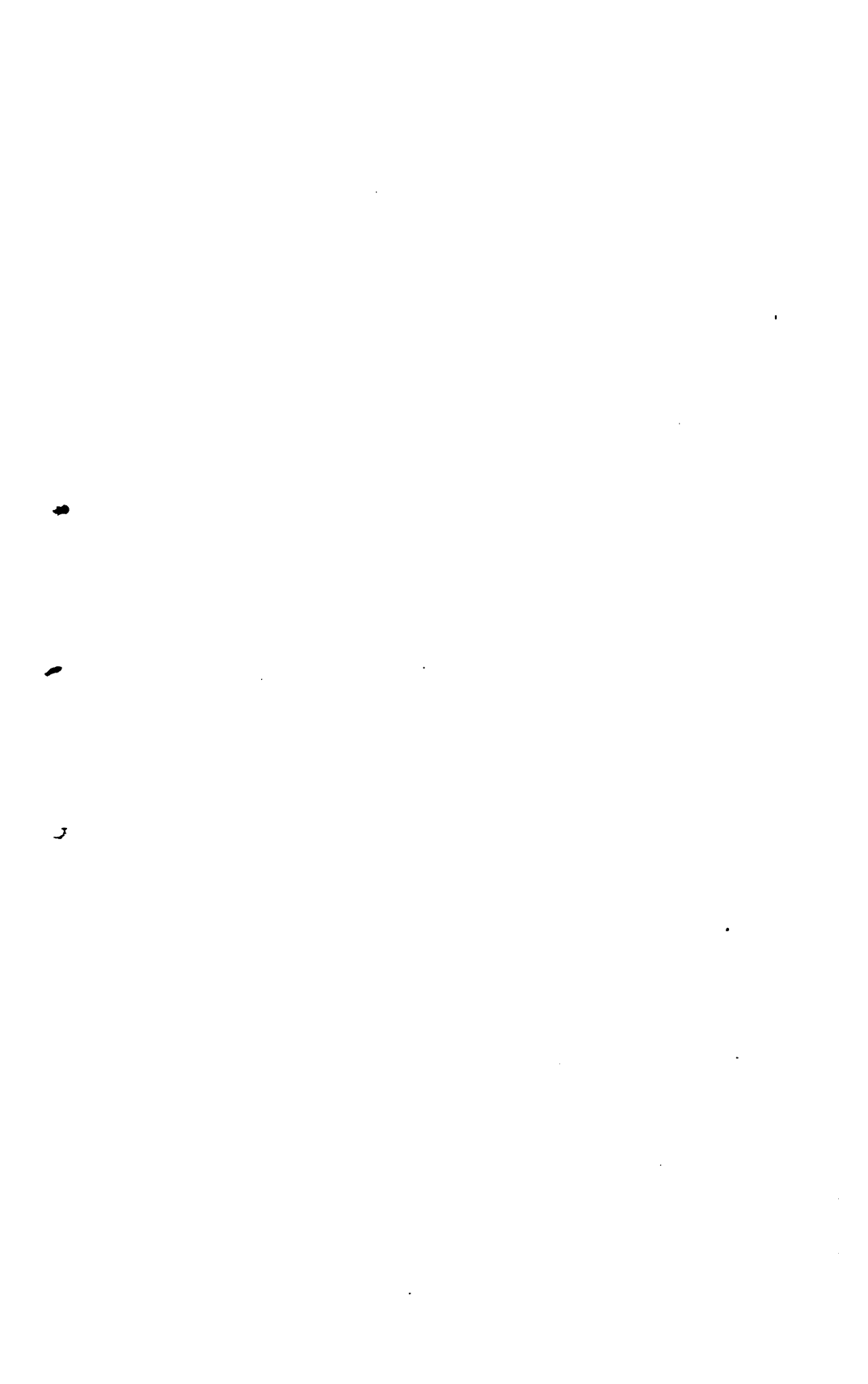




FIG. 1.—From a case of Obturator Hernia, showing the ruptured portion, *a*, found in the sac, and the more annular destruction, *b*, at the site of the constriction.

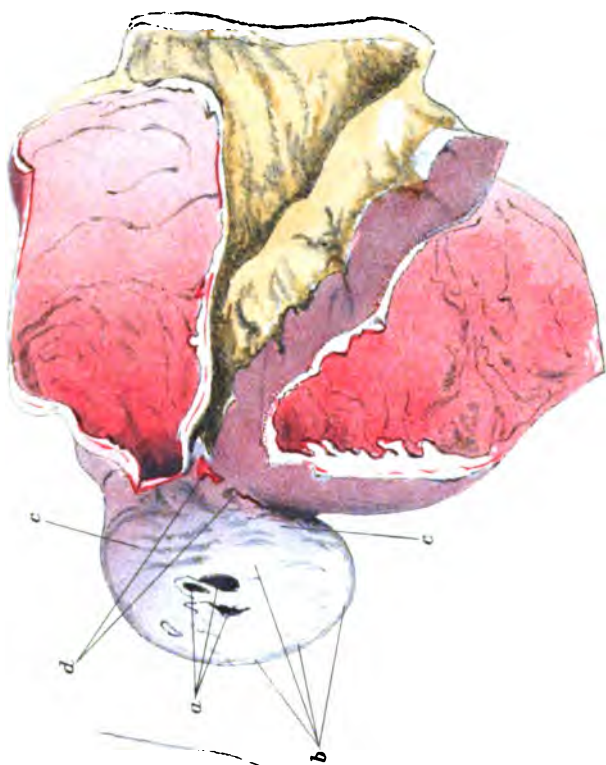


FIG. 2.—From a Femoral Hernia. Numerous perforations, *a*, are seen in the knuckle of gut which lay in the sac. Only the thin visceral peritoneum remained intact over *b*, but the rest of the layers were entire at *c*. Ulceration beneath the constriction is seen at *d*.

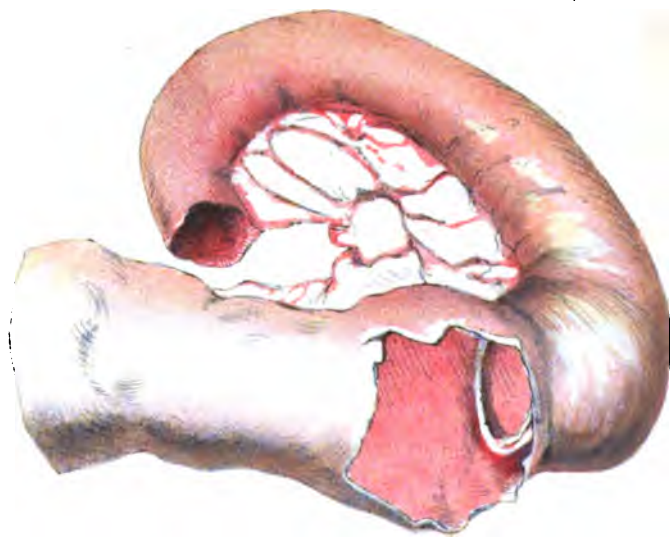


FIG. 1.—Narrow diaphragm left at site where a ligature had been applied to the intestine of a dog. The ligature made its way through, and the bowel united.

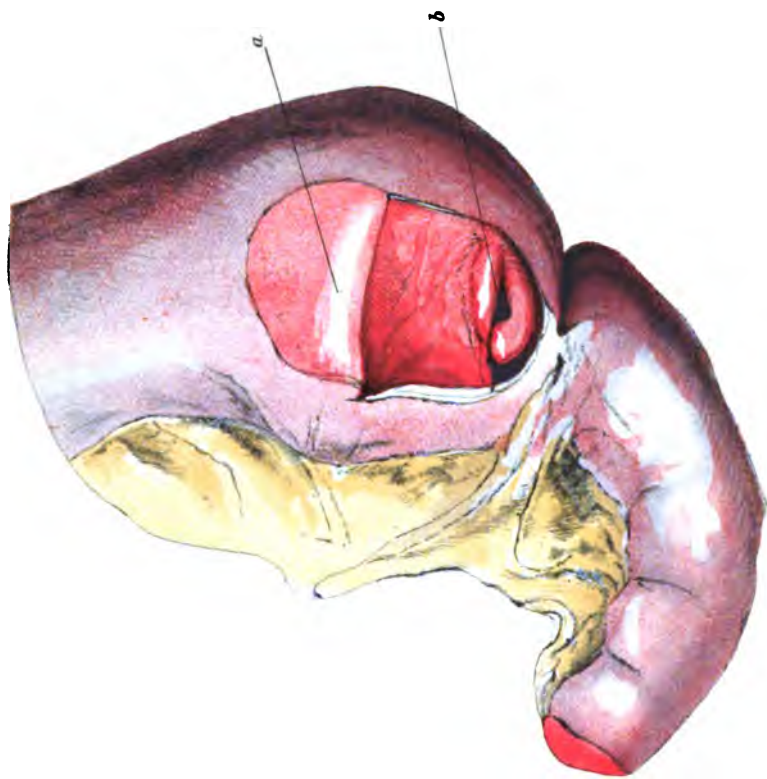


FIG. 2.—Dense pyloric-like stricture which developed at the site of constriction in a strangulated femoral hernia. Preparations obtained seven months after operation—*a*, reflected wall of bowel, displaying *b*, the stricture.

PLATE II.

- FIG. 1.—Aspect of the bowel in Case I. after division of the stricture and pulling down of the gut. The bowel has given way at two points—one at the constriction and one above it.
- FIG. 2.—The bowel as exposed in Case II., showing the gangrenous area *a*, and the tail of the omental tag *b*.
- FIG. 3.—Lembert sutures so passed as to secure invagination of the ruptured and gangrenous area, and apposition of the healthy area beyond.

PLATE III.

- FIG. 1.—From an obturator hernia, showing the ruptured portion, *a*, found in the sac, and the more annular distinction, *b*, at the site of constriction.
- FIG. 2.—From a femoral hernia. Numerous perforations, *a*, are seen in the knuckle of gut which lay in the sac. Only the thin visceral peritoneum remained intact at *b*, but the rest of the layers were entire at *c*. Ulceration beneath the constriction is seen at *d*. The destructive changes take place from the mucous surface outwards.

PLATE IV.

- FIG. 1.—Portion of a small intestine of a dog with the arteries injected. A circular band, resembling a pylorus, is seen internally, with the intestine dilated above and below the constriction. The bowel was enclosed in a ligature which was discharged per anum the fourth day after operation, and the animal was allowed to live three weeks subsequently. Preparation in the Edinburgh University Museum. Presented by George Truett, Esq.
- FIG. 2.—Narrow pyloric-like contraction which developed at the seat of constriction after operation for strangulated femoral hernia, and which proved fatal seven months afterwards. *a*, reflected wall of bowel; *b*, stricture.

VII.—INAUGURAL ADDRESS: SKETCH OF THE HISTORY OF THE OBSTETRICAL SOCIETY.

By CHARLES EDWARD UNDERHILL, M.B., F.R.C.P. Ed.

(Read before the Edinburgh Obstetrical Society, 18th November 1889.)

(Continued from page 747.)

IN session 26, Dr Bonnar contributed a laborious paper on a Critical Study of Superfoetation, which has been a mine of wealth to subsequent writers on the subject; and Dr Robert Finlay, who shortly after gave up Medicine for the Bar, a paper called "Notes on the History of Ancient Greek Midwifery." During this session Dr Angus Macdonald became a Fellow. In June 1865 the Society determined to find a more suitable hall in which to hold their meetings, and accordingly fixed on No. 5 St Andrew Square, where all the subsequent meetings have been held. Sir James Simpson, who shortly afterwards received his Baronetcy, was the next President, being elected on 29th November 1865. The work of this session was mostly of the ordinary routine

discussions, relieved by a paper by Sir W. Turner on a case of Pregnancy in a Rudimentary Uterine Horn, and a fatal case of Cæsarean Section by the President.

On 26th April 1866, reference was made in strong terms of condemnation to a letter which had appeared in *Punch*, dated from Edinburgh, and giving an account of the proceedings of the Society. It was unanimously agreed that if the author could be discovered and was a Fellow of the Society, he should be requested to retire from it. I cannot find that the author ever was discovered.

At the beginning of next session the laws were revised, printed, and circulated among the Fellows; with the addition of a new law permitting the admission to the Society's meetings of any registered practitioner introduced by a Fellow. Dr Matthews Duncan, whose name was long absent from the proceedings of the Society, appeared again this session with his well-known paper, "The Production of Inversion of the Uterus." Dr J. Young, in February 1867, contributed two fatal cases of Hæmorrhage from Scarification of the Gums. Dr A. Milne also read an important paper on the Comparative Value of Long Forceps and Turning in cases of Contracted Brim. I find a note of a prolonged discussion at the last meeting of the session in private, on a paper by Dr C. Bell, entitled "Notes on the Case of Sharp v. Wilson."

In November of this year Dr Burn was elected President, and during the session Mr C. E. Smith, surgeon of the "Diana," addressed the Society on the Diseases and Midwifery of the Esquimaux, also on the Effect of Protracted Exposure to Cold and Privations on the Human System; and at a subsequent meeting Dr Fraser read a note of a "Primitive Mode of Aiding Labour," extracted from Carver's *Travels in North America*. The mode consisted in the application of a handkerchief round the parturient woman's neck, till strangulation was nearly produced, and this was believed to increase the expulsive power of the pains. In this session also Dr Matthews Duncan described and exhibited his Cephalotribe; other instruments of the same type were shortly afterwards devised and shown by Sir J. Simpson and Dr Andrew Inglis.

The following session (30) is signalised by the decision (on the motion of Dr James Young) to publish a volume of Transactions at the end of the session. Dr Young desired the publication to be an annual one, but this was not at that time thought feasible; and the annual volume did not make its appearance till ten years later. Among other communications was an address by Sir J. Simpson on the Construction and Salubrity of Maternity Hospitals. In the course of his remarks, he alluded to the necessity of having a new Maternity Hospital for Edinburgh. He was of opinion that it should be built on the cottage system, and should not contain more than twenty or thirty beds. Each room should

contain two or three women and a nurse; and some arrangement should be made by which cases of puerperal fever could be at once removed from the hospital. It is a pity that these enlightened views were not taken into account when the New Maternity was built—for though under our present system of strict antisepsis puerperal fever is, or ought to be, a thing of the past, carelessness will sometimes creep in, and the prevention which is secured by isolation is the greatest possible aid to avoidance of infection. On 1st May 1869, Dr C. Bell gave a report of the cases attended at the Maternity Hospital during the past winter. This was the first Maternity Report, so far as I can find, which had been read to the Society for many years, and it was not until a good many years later that Dr Bell's example was followed, and the quarterly reports regularly published.

At the beginning of the next session (31st), December 1869, under the presidency of Dr C. Bell, it was agreed that steps should be taken to form a library for the Society, and Dr Keiller presented a bookcase for the reception of such books and pamphlets as might be received. Later in the session Sir J. Simpson read a case of Death while under Chloroform during the performance of Ovariectomy. He had given the chloroform himself, while Dr Brotherston of Alloa was performing the operation. The woman vomited, and died the moment the hand was introduced into the abdominal cavity. At later meetings Dr Craig reported a case of Puerperal Tetanus, and Dr Duncan read an important paper on the Production of Face Cases. In April of this year (1870) the first volume of Transactions was published; it contained the proceedings of the previous session, and was also enriched with a valuable Appendix containing a list of all the papers which had been read before the Society from its foundation, drawn up with much labour by Dr Peel Ritchie, the editor of the volume. Early in May occurred the lamented death of Sir James Simpson, and out of respect for one to whom they owed so much, the Society adjourned for a fortnight the meeting held on the 11th of the month, and attended the funeral in a body. I have already mentioned some of the more important of the papers he read before the Society; but when we remember that he was for years its head and chief support, and that very few meetings passed without some contribution either to the papers or to the debates from his fertile mind and fluent speech, you can realize how deeply his loss was felt.

During this session two interesting papers were produced by Dr Lachlan Aitken, an able and earnest worker, who was obliged to leave this country soon afterwards from ill health. They were entitled, "Remarks on Pelvic Peritonitis and Pelvic Cellulitis," and "On some of the Dangers attending the use of Tangle Tents." And there was a discussion on the use of Chloral, at that time a new drug, in Midwifery, both normal and abnormal, introduced in

a paper by Dr Lambert of Paris. The doses there recommended were somewhat heroic—one drachm, repeated in a short time, being the quantity commonly given.

The following session was not marked by proceedings of much interest, except a discussion on Vaccination during an epidemic of Small-pox, which followed a paper by Dr Bruce, and several contributions by Dr Duncan, the most important being his classical paper on "The Mechanism of the Expulsion of the Placenta." Dr James Young related a case of early pregnancy. The patient was fourteen years and one month old when she became pregnant, and under fifteen when she was delivered. The labour was a tedious one, but she recovered, and had a second child the following year. Dr Duncan also had met with labour in a girl under fifteen, the father of the child being only sixteen. The function of the Perineum in *Procedentia Uteri* was discussed in two papers—one by Dr Duncan, the other by Dr A. Milne. There was also a useful paper by Dr Peel Ritchie on the Inflammations of the Mouth in Children, with an illustrative case of *Cancrum Oris*. The records of these two sessions are to be found in the second volume of our Transactions.

Dr Ramsay Thomson of Dalkeith was the next President (session 33, November 1871). The session was opened by a *conversazione*, at which Dr Keiller delivered an inaugural address on the Progress and Aims of Obstetrics, in the course of which he paid a warm tribute to the large part Sir James Simpson had played in the advancement of both the science and art of Midwifery. The principal contributor to the work of the session, which was otherwise not a remarkable one, was Dr Angus Macdonald. He read a paper on "The Use of Barnes' Bags in the Treatment of *Placenta Prævia*," and another on "A Case of Shoulder Presentation where Turning was impossible, and Labour was completed by Spondylotomy." (Dr Affleck was joint-author of this latter contribution.) They were both marked by his usual thoroughness of treatment and exactness of detail.

In session 34 Dr Macdonald read a most instructive paper on Latent Gonorrhœa in the Female Sex, in which he largely supported and amplified the recently published views of Noeggerath, though he hesitated to follow that author in all his conclusions, and at a subsequent meeting he contrasted the Forceps, Turning, and Production of Premature Labour in Contracted Pelves—a paper which led to an interesting discussion. Dr Slavjansky of St Petersburg contributed two papers based on microscopical investigation, one in conjunction with Dr Duncan on a case of Uterine Polypus of an unusual character, the other on Chronic Endometritis Decidualis as a cause of abortion in some displacements of the pregnant uterus. Dr Duncan pointed out the changes undergone by the Cervix Uteri during labour, and Professor Simpson described some cases of *Atresia Vaginæ*.

In November 1873 (session 35), Dr Matthews Duncan was elected President, and delivered an inaugural address of great beauty and value on the Extension and Increase of the Scientific Spirit in Medicine, in which he urged the transcendent value of scientific pursuits, and showed how apt we are to forget the two great truths, first, that "knowledge is power," useful power to the bedside practitioner; and, second, that the progress of science is the best, almost the only source of progress in the useful arts. The session was marked by a valuable practical paper by Dr Macdonald on "The Nature and Treatment of difficult Occipito-Posterior Positions of the Head, founded on an Analysis of Twenty-six Operative Cases," in which the subject was discussed in all its bearings; and a note by Dr Duncan on the Aperture necessary for the Passage of the Placenta, and for the Passage of the Accoucheur's Hand. Dr Cappie contributed an interesting case of Fibroid of the Uterus complicating Pregnancy, and proving fatal by torsion of the pedicle. With this session ends vol. iii. of the Transactions.

In session 36 (1874-5) there were several papers of importance. Dr Macdonald showed and described, with full dissection, a Diprosopus Triophthalmus Monster, of which a fine drawing is given in the Transactions. Dr Hardie made a new observation in showing the presence of "prickle cells" in the capsule of a fibrous polypus of the uterus. Dr Connel read a case of Fatal Post-partum Hæmorrhage, which was followed by a long discussion on the nature and treatment of this accident, with special reference to the use of perchloride of iron. Dr Sutugin, of St Petersburg, sent a very complete and elaborate paper on "The Means of Ascertaining the Length of Gestation by Measurements of the Fœtus and Gravid Uterus during the Second Period of Pregnancy." It was full of careful and exact measurements, and is well worthy of study. This was shortly after followed by a paper on "Contributions to the Determination of the Diminution of the Uterus after Delivery," by Dr Serdukoff, of Moscow—a paper of an equally elaborate kind. Mr Lawson Tait communicated some observations on the Enlargement of the Thyroid Body in Pregnancy, and Dr Macdonald reported a case of Puerperal Tetanus, specially dealing with the pathology of the disease. In May, Dr Foulis read a laborious and valuable paper on the Development of Cysts in the Stroma of the Ovary, in which he traversed Waldeyer's views on the origin of the cells of the membrana granulosa. Later in the session, a useful statistical paper was read by Dr James Cumming on the Uterine Souffle and the Fœtal Heart, in which he showed that there seemed to be some relation between the weight of the fœtus and the rapidity of the fetal pulse in utero; and that for the weight per pound the pulsations are slower in the male than in the female.

Professor A. R. Simpson was our next President, and during the

session which followed (1875-76) contributed largely to the work of the Society. His first paper was an important one on "Sarcoma Uteri," illustrated by several cases. At the December meeting, at which a number of distinguished visitors were present by invitation, he delivered an inaugural address entitled "Emmenologia," which dealt exhaustively with the subject of Menstruation in all its aspects; and at a subsequent meeting he emphasized the importance of the complete evacuation of the uterus after abortion. Still later, he read a fatal case of that rare disease "Chorea Gravidarum." A case of Extra-uterine Fœtation successfully treated by Abdominal Section was communicated by Dr J. Macdougall of Carlisle. The operation was performed fifteen months after the death of the fœtus at full time; the cyst was opened and drained, no trace of a placenta being found. During the session Dr Duncan fulminated a paper against the pendulum movement in working the forceps; and read communications On the Inevitable and Other Lacerations of the Orifice of the Vagina and near it in Primiparæ, and on Rupture of the Perineum. And Dr Macdonald treated at length of Albuminuria and Puerperal Eclampsia, with comments on the nature and pathology of the disease.

The 38th session (1876-77) was inaugurated by a public meeting, at which Professor Turner, at the request of the Council, gave a valuable and instructive sketch of the Anatomy of the Placenta, embracing the researches which he had himself made within the last few years on the human placenta and that of other mammals. He pointed out in the course of the address how recent advances in our anatomical knowledge were helping to clear up many disputed points in the physiology of the placenta. At the next meeting, Professor Simpson read a report, drawn up by himself and Dr Finlay, of their visit to the International Medical Congress of Philadelphia, as delegates from the Society. Dr Duncan continued his series of researches on the Perineum in two papers, dealing with the Lacerations of the External Genital Organs, except the Hymen, during Labour in Primiparæ; and Some of the Relations of the Fœtal Head to Rupture of the Perineum and Injuries of the External Genital Organs respectively. They were illustrated by many cases, showing how frequent and numerous these injuries are. Dr Macdonald treated of the Cervix Uteri in the Later Months of Utero-gestation, combating the older views as to the taking up of the cervix into the body of the uterus, and also criticising the more recent statements of Bandl. He also related two interesting and well-observed cases of Puerperal Pleuro-pneumonia, both of which recovered. Dr Church related a case of Hemiplegia in an infant following the application of forceps during birth. Dr Engelmann, of Kreuznach, contributed an important essay on Fibrous Tumours of the Uterus, and their treatment at Kreuznach. Dr Bruce treated of the means of resuscitating still-born children; and, finally, Dr Macdonald, who contributed an amazing amount of

work to the Society during this session, read his great paper on the Bearings of Chronic Diseases of the Heart on Pregnancy and Parturition, which occupied three meetings in its recital; and at the last meeting he read a paper on the Nature and Mechanism of Spontaneous Rupture of the Uterus in its Cervical Portion.

With this session our fourth volume of Transactions ends. Since then the Transactions of each session have been brought out in the autumn following. They were at first published in paper coverings, and the first three years bound together make up the fifth volume. In 1880-81 began the annual series of Transactions as we have them now. This most important change is due to the untiring energy and business capacity of our treasurer, Dr W. Craig, who has edited all the later volumes. Before the beginning of the next session the Society suffered a serious loss by the removal of Dr Duncan to London. For though he has sent us occasional papers since, we sorely missed his constant attendance, keen criticism, and debating power, as well as the constant succession of able papers he was in the habit of communicating to us. No more valuable work has been done for the Society than that which came from Dr Duncan.

The following session, at the beginning of which Dr D. Wilson was elected President, was rich in papers of interest. Professor Simpson opened it with an address on the Treatment of Fibroid Tumours of the Uterus, in which he treated exhaustively the whole subject, both in its medical and surgical aspects. Professor Simon, of Heidelberg, contributed a paper of much interest, dealing with the operation for Vesico-vaginal Fistula; and Dr Croom read a paper of importance, treating of Retention of Urine in the Female. Dr Mundé, of New York, and Professor Schroeder, of Berlin, also sent contributions, the former on the Use of the Dull Wire Curette in Gynæcological Practice; the latter on the Condition of the Hymen and its Remains after Cohabitation, Childbed, and Lying-in, profusely illustrated by excellent drawings. Shortly after, Dr Charles Bell read a long paper on Placenta Prævia, which led to an animated discussion. The remaining papers of note were by Dr Macdonald on the Risks and Treatment of Intra-uterine Hydrocephalus as a Complication of Labour, a full and valuable commentary on the subject; and Curettes and Curetting by Dr Keiller, in some sort an answer to Mundé's contribution.

The most important feature in the next session (1878-79) was the number of papers devoted to the Anatomy and Mechanism of Labour. Chief among these were three original and valuable works by Dr Berry Hart, which are so well known and valued that I shall merely recapitulate their titles. They were—(1.) A Study of two Mesial Vertical Sections of the Female Pelvis in Relation to the Normal Support of the Uterus and Prolapsus Uteri. (2.) The Bearings of the Shape of the Fœtal Head on the Mechanism of Labour. (3.) Source of Error in the Clinical

Estimation of the Elongation of the Cervix during Labour. They were followed by Head Flexion in Labour, by Professor Simpson; Development and Structure of the Ovary, by Dr Foulis; and Spasmodic Contraction of the Lower Uterine Segment, by Dr Macdonald. Among the more practical subjects brought forward were Tarnier's forceps, then quite recently introduced, shown by Dr R. Bell of Glasgow. Papers on the *Ætiology* and Treatment of Puerperal Fever, by Dr Baird; some of the Causes of Sterility, by Professor Simpson; and the Use of the Volsella in Gynecology, by the same author. Dr Keiller read a report of the cases at the Maternity during his term of office. These reports have since formed a regular part of the Society's Transactions.

In session 41, Dr Macdonald was elected President. Dr Wilson, on vacating the chair, delivered an address, giving an interesting *résumé* of the advance of Obstetrics during the forty years of the Society's existence. Dr Hart continued his series of scientific papers, by communications on the Position and Distension of the Female Bladder; and Sacro-pubic Hernia, otherwise known as Prolapsus Uteri.

Dr Croom discussed the Causation of some Primitive Face Cases. Dr Duncan sent a valuable contribution on Intra-uterine Puerperal Coagula; and Professor Simpson introduced the Basilyst, with a paper describing its objects and uses, and another paper on Axis-traction Forceps; and Dr Macdonald reported some cases of Parametritis, with Observations on its Diagnosis and Treatment. Towards the end of the session, Puerperal Septicæmia was fully discussed, papers on the subject being presented by Dr Macdonald and Dr M'Raild.

The following session was less prolific than the two preceding ones, but it contained the first serious notice to the Society of the application of the Listerian principles to obstetric practice; this was contained in a paper by Dr Croom, entitled "The Systematic Use of Antiseptics in Midwifery," in which he described in detail the methods he employed in the Maternity and in private practice. Dr Macdonald related two interesting cases of Chronic Inversion of the Uterus and their successful treatment; while Dr Hart read a paper on the Shape of the Empty Female Bladder. Dr Leith Napier contributed some statistics to the study of Puerperal Temperatures, and Professor Simpson described his first case of Porro's operation.

In session 43 (1881-82), Professor Simpson was called to the Chair for the second time. The session was not a specially brilliant one, but there were interesting papers on a difficult Face Case, by Dr Milne Murray; case of Pregnancy at the age of 62, by Dr W. R. Kennedy, where the evidence was carefully given. Graviditas Serotina et Præcox, by Dr Peter Young; Funic Hæmorrhage during Labour, an elaborate paper by Dr Croom; some points in the Physics of the Bladder and Rectum, by Dr

Hart; and a valuable contribution on the Diagnosis of Advanced Extra-uterine Gestation after the Death of the Fœtus, by Dr Barbour.

The following session the President delivered an inaugural address, which was mainly devoted to some recent literature on the History of the Chamberlens and the invention of the Forceps. The most notable paper was a long contribution to our knowledge of Extra-uterine Gestation, by Dr Freund. Dr Croom continued his series of papers on the Bladder during Labour and the Puerperium; and Professor Simpson reported further experience with the Basilyst. Dr Peter Young, in a useful practical paper, discussed the subject of Dangerous Hæmorrhage from the External Genital Organs during and after Labour; and Dr Hart dealt with the Anatomy and Ætiology of Rupture of the Peritoneal Portion of the Vagina during Labour. During this session, a Pathological Committee was appointed to consider a report upon any pathological specimens that might be referred to it.

Session 1883-84 was opened by a valedictory address from Professor Simpson, who vacated the chair in favour of Dr Connel, of Peebles. The session was notable from the number of surgical papers which were read during its course. Thus Dr Macdonald contributed two cases of Extra-uterine Pregnancy, one of which was successfully treated by laparotomy, and was remarkable for the boldness of the surgery employed. Professor Simpson recorded a second case of Porro's operation; Dr Arnott, of Bombay, three cases of Cæsarean Section; Dr Chapman, the removal of a pair of Cystic Fallopian Tubes; and Mr Skene Keith, six cases of Trachelorrhaphy. Among the other workers of the Society Dr Barbour stands first with a valuable contribution to the Anatomy and Relations of the Uterus during the Third Stage of Labour and the First Days of the Puerperium. Dr Macdonald and Dr Matthews Duncan contributed papers on Lupus of the Female Generative Organs; and Dr Leith Napier wrote on Puerperal Albuminuria—a paper which gave rise to considerable discussion. In addition to the quarterly reports from the Maternity, the volume of Transactions for this session was enriched by records of the more interesting and important cases which had occurred in the Infirmary wards of Professor Simpson and Dr Macdonald, and some notes on Labour in Central Africa by Dr Felkin.

The session 1884-85 opened with a scholarly and thoughtful address by the President, Dr Connel; and a winter full of good work followed. There was a highly scientific and yet practical paper on the Prevention of Lying-in Fever, by Dr Vassily Sutugin, of St Petersburg; and Dr Ballantyne showed us, for the first time, Sphygmographic Tracings from cases of Puerperal Eclampsia. Dr Barbour added two papers to the Physiology and Pathology of the Third Stage of Labour; while Dr F. Simonds gave an account of some of the rarer forms of Malignant Disease

of the Female Sexual Organs which had been recently observed in Professor Simpson's wards. Surgeon-Major Arnott related his experience in Craniotomy at the Jamsetjee Jejeebhoy Hospital in Bombay. In the domain of Surgery Dr Macdonald described two interesting operations, the one a Porro-Müller, the other the removal of the Pregnant Horn of a Bifurcated Uterus.

The following session (47th), Dr Halliday Croom was elected President, and Dr Connel delivered, in leaving the chair, another eloquent and philosophical address. At the second meeting there was a general discussion on Micro-organisms in relation to Puerperal Fever, with special reference to Antiseptics, introduced in a paper with that title by Dr Barbour. Dr Hare (now of Manchester) made an interesting contribution to the debate from the point of view of the bacteriologist, and many of the Fellows joined in the discussion. Later in the session, Dr Symington, in a paper on the Position of the Uterus and Ovaries in the Child, made a valuable and original contribution to Anatomy; and Dr Milne Murray's elaborate and laborious paper which followed on some of the Physiological and Therapeutical effects of Water at different Temperatures, with special reference to Obstetrical and Gynecological Practice, was well worthy to be ranked with it. Professor Simpson made a gallant effort to provide a common nomenclature in Obstetrics, and Dr Croom discussed "Fibrous Polypi Complicating Labour," and "Post-Partum Vaginal Hæmatoma," in two excellent papers. During this session the Society sustained a great loss in the death of Dr Angus Macdonald,—a man of great powers, untiring industry, and firm will, who had forced his way to the very forefront of the profession by the abounding energy with which he carried out anything to which he put his hand, and the clear and comprehensive mind which directed all his efforts. His manly and kindly nature made him beloved by all with whom he had to do.

Session 48 (1886-87), which was opened by an address by the President, in which he fully discussed and justified the removal of the appendages, and defined the cases in which the operation is appropriate, was chiefly noteworthy for the contributions to Anatomy and Physiology from Dr Barbour and Dr Hart. The former read a series of elaborate papers on the "Sectional Anatomy of Labour," in which much new ground was opened up; the latter in conjunction with Dr Carter, in a paper which bids fair to become classic ground, described most accurately the Sectional Anatomy of Extra-uterine Gestation. He made also a contribution to Anatomy of the Post-partum Uterus, with special reference to Placenta Prævia. Among the practical papers was one by Dr Croom on the "Indications for and Methods of Washing Out the Puerperal Uterus," and another by the same author, giving an account of a series of Abdominal Sections. Dr Brewis contributed a case of Spontaneous Inversion of the Uterus, and Dr Talent a case

of Chorea Gravidarum. Dr Foulis made an able contribution to the question of Axis-traction Forceps, and presented an instrument on an entirely original plan.

I am now approaching the end of my task, and it only remains for me to remind you of the work that has been done since the time, two years ago, when you did me the honour to elect me your President. These two sessions, I am proud to think, show as good a record as most which have gone before them. Dr Croom's valedictory address was, as might be expected, full of weighty matter well put together, and in the course of the session of 1887-8 we had papers dealing with that very serious complication, Mitral Stenosis in Labour, by Drs Hart and Ballantyne, the latter illustrating his work by some excellent sphygmographic tracings. Dr Barbour presented a criticism of the works of others, and an able defence of his own views on the Third Stage of Labour. Dr Duncan sent us a valuable contribution, opening up a little-worked field—namely, the relation of Alcoholism to Gynæcology and Obstetrics. Dr Foulis came forward with a new theory on the Causation of the Position of the Fœtus in Utero, and Drs Croom and Brewis gave proofs of their skill and success as operators in statistical papers recording their practice in Laparotomy. Again, the Society is indebted to Dr Barbour for a scholarly study of the history of the contributions of the early Anatomists to Obstetrics. Dr Currie also read some interesting notes on the Obstetric History of two Queens of England. Dr Milne Murray described and demonstrated the action of Galvanism on the Tissues, and recounted some experiments on the effects of Compression on the Fœtal Skull; and Dr Ballantyne read a contribution to the Anatomy of the Labia Minora and Hymen.

During last session we had several excellent papers, dealing with the Third Stage of Labour from the physiological as well as from the practical standpoint, by Dr Hart and Dr T. A. Helme; and one on the Mechanism of Labour, by Dr Barbour. Dr Symington again favoured us with a valuable contribution on the Normal Anatomy of the Female Pelvic Floor, which was followed by a paper on the same subject by Dr Hart, in which his well-known views were ably restated and confirmed. This brought on an interesting discussion, not without considerable differences of opinion. Dr Felkin related some cases of Fœtal Malaria as he had met with it in the East; and, in another paper, discussed the relationship existing between the advance of Civilisation and the increase of Sepsis. Two contributions to the study of Heart Disease in relation to Labour were read by Dr Hart and Dr W. F. Wright. Dr Haig Ferguson reported some interesting cases of a variety of Post-partum Shock, and propounded a theory in explanation of them. Dr G. O. Mackness described an investigation he had made on the relative Weights of the Placenta and the Child, and reported his results. Dr Leith Napier, in a speculative paper, discussed

the relationship between Neuralgia and Abortion; and, finally, Dr Croom gave an analysis of 130 cases of Abdominal Section, with remarkably successful results.

In the foregoing account of the work of the Society, I have necessarily omitted any notice of by far the larger part of the papers and proceedings. I have but skimmed over the surface and taken off some of the cream, leaving behind an enormous quantity of material on which there was no time to enlarge. There are among the records endless papers and discussions on individual cases, or groups of cases, of all the common accidents and complications of labour, and of the ordinary and extraordinary injuries and diseases which come into the domain of Gynæcology, and of the medicinal and operative treatment necessary for their cure. I have said nothing of the exhibitions of morbid specimens and monsters; little of the production of new instruments—such as forceps, cephalotribes, specula, of which there has been not a few; or pessaries, of which there have been dozens. I do not undervalue such work—far from it—but there was not room for each to be separately mentioned, and I have endeavoured to pick out those which seemed to be of most permanent interest, or from their more general and scientific character to be most likely to leave their mark upon the future of Obstetrics. For, be it remembered that scientific observations and experiments, though they seldom react immediately upon practice, have a great influence in the long run; they gradually make their way into the text-books, and take their place among the lectures of the teachers, and thus become, by degrees, incorporated as part and parcel of the accepted doctrines of the time.

And if we ask, What is the outcome of it all, what great changes and improvements in our art can you point to as the result of this fifty years of eager work? I would say that in the domain of Midwifery we have found in ether and chloroform a means of alleviating the worst pangs of labour, of subduing convulsions, and of rendering infinitely less difficult those operations which we are all called upon now and again to perform. Indiscriminate bleeding has been abolished. The forceps, no longer regarded as a weapon scarcely less deadly than the perforator, has been found to be a beneficent instrument for the relief of tedious labour and the saving of dangerous exhaustion. Turning has been rendered by the bipolar method more easy of performance, and has been called into use in many cases of distorted brim, where the infant was formerly sacrificed. We have found surer and better means for dilating the cervix and inducing premature labour. The study that has been given to the anatomy and physiology of placenta prævia has resulted in a treatment vastly more successful than was formerly the case. By more careful watching of our cases and an improved treatment we have rendered post-partum hæmorrhage both a less frequent and a less formidable accident. And last, and best of

all, by the introduction of the principles of antiseptics into midwifery practice, the dreaded fevers of the lying-in period have been to a great extent abolished from lying-in hospitals, formerly hardly ever free from them, and to a less degree from private practice.

In the domain of Gynæcology our gains have been even more striking, and here it is to the surgeons that almost all of the advance is due. Ovarian tumours, fifty years ago the despair of the physician, are now removed at an early period with almost unvarying success. The introduction of silver-wire opened up a new field in operations on the perineum and on vesico-vaginal fistulæ, which is ever widening in extent. Cæsarean section, which not so long since was almost invariably fatal in this country, is now performed by the method of Porro or of Sânger with a very remarkable degree of success. Ruptured tubal pregnancy, till recently one of the most fatal of accidents, is now attacked with marvellous results. Electricity is again coming to the front as a valuable agent of cure in those cases which it is a serious thing to leave alone, and an even more serious thing to attack with the knife. The removal of the uterine appendages—a natural deduction from a study of the physiology of the parts—has become an established proceeding in certain cases of bleeding fibroids and in other conditions.

In Midwifery and Gynæcology alike we have advanced greatly in exactness of diagnosis, and in energy and boldness in treatment.

Such are some of the most notable changes which have taken place in the *practice* of our art since this Society was established, and in not a few of them we can fairly claim our share. We have perhaps a still better claim to have helped forward the *science* of Obstetrics. Great strides have been made in the accurate knowledge of the structure of the placenta in man and other mammals; of the connexions between the bloodvessels of the mother and the fœtus; of the anatomy of the pelvis and its contents; of the uterus in the pregnant and puerperal conditions, both normal and pathological; of the anatomy and physiology of the whole process of pregnancy (whether within or without the uterus), and of labour from beginning to end.

A word or two in conclusion as to the material position and prospects of the Society. This is best shown by tabulating the numbers of Fellows at the time the Transactions first appeared, 1870; at the time when the Transactions began to appear annually; and at the present time.

	Honorary Fellows.	Corresponding Fellows.	Ordinary Fellows.
In 1870, .	30	105	109
„ 1878, .	19	103	116
„ 1889, .	37	87	306

These figures seem to show that the annual publication of the

Transactions has brought a very large addition to our numbers, and the increase has been gradual and steady. The Fellows who subscribe to receive the Transactions are not confined to Edinburgh and its neighbourhood, as was exclusively the case in 1870, but are spread over Scotland, England, and several of the colonies.

The finances of the Society are in a flourishing condition.

The office of Treasurer was at first discharged by the Senior Secretary, but in 1861 Dr James Sidey was appointed to this separate duty, after acting as Financial Secretary for several years. In 1867 he was succeeded by Dr James Young, who held office until 1875, when our present energetic Treasurer Dr Craig was appointed. He has worthily filled the office for the past fourteen years, and has brought our finances into a state worthy of a Chancellor of the Exchequer.

Our secretaries have been numerous, and we have to thank them in great measure for the Society's success. They have arranged its business, stimulated the workers, and kept the ball rolling; and they have reported and recorded all the work which has been done at our meetings.

Our library is our weak point. It has never had a fair start; and though we possess a few valuable books, and are annually adding to the volumes of periodicals by exchanges with other Societies, and occasionally receive a gift of papers or books from their authors, it is still a small and weakly growth. It is full, however, of possibilities, and I commend its condition to the Council and the Society as a subject for serious consideration during the coming session.

And now, gentlemen, it but remains for me to hand over the reins of office to a worthier successor, whose name I have had occasion so frequently to mention in the later periods of our history; and I can only hope that our progress in the future may be worthy of the traditions of the past; and that by earnest and honest labour we may succeed in reclaiming many a good piece of solid ground at present covered by the infinite ocean of the unknown.

AN IDEAL OPERATING THEATRE.

IN the *Revue de Chirurgie* for August 1889 there appears an account of the new Operating Theatre of the Hotel Dieu in Lyons, by Professor Poncet, Senior Surgeon to that Hospital.

For some years antiseptic precautions had been used there with gratifying results, so far as immunity from pyæmia, septicæmia, and hospital gangrene were concerned, but not with that entire freedom from suppuration in the wounds, which indicates a perfect asepsis.

The former operating theatre and its appurtenances was not as it should have been, and was rightly thought to be a source of

danger to the wounds. The theatre was used as a dressing-room for out-patients, also as a theatre for serious operations; the instruments and apparatus in use were the common property of all the surgeons, and the staff of assistants was insufficient. Consequently, as in course of time the beds under Professor Poncet's care increased up to 100 and 150, and his personal supervision became more and more difficult, he became much more dissatisfied with his results. Having, therefore, obtained the cordial support of the Hospital authorities, he set himself to renovate the entire structure, arrangement, and equipment of his operating theatre. He visited many of the hospitals in France and elsewhere, and took suggestions chiefly from Germany, Switzerland, and America. He recognised that the sources of contamination of wounds were twofold, i.e., the air and by direct contact, and he accordingly determined to obviate both to the best of his ability.

To prevent contamination from the air, he had the theatre constructed so that it would harbour no dust, and could be easily washed down with water or antiseptic solution. The walls were lined with large plates of glass, the corners of the room being occupied with small plates, so as to prevent the formation of any angles. No pictures or other dust-harbourers were permitted. The shelves for holding solutions, dressing-boxes, etc., consisted of plates of glass not quite touching the walls, and supported on nickelled iron brackets. The doors (opening inwards), the framework of the operating-tables, the towel-rails, the pegs for overalls, the frames for instrument-cases, the chairs, and lavatory-taps were all in like manner made of nickelled metal; while almost every apparatus with an extensive surface, such as the operating-table tops, lavatory slabs, sides, and top of the instrument-case, were also of glass, so that, as all the surfaces were smooth, impermeable, and unrustable, dust had a very slight chance of lodging, and could be easily washed off if it did.

The floor was of cement, slightly roughened to obviate slipperiness, and gently sloped from the sides to the central aperture to permit fluids to drain off rapidly. The fireplace was of polished marble without ornament or decoration, and coke was used as fuel, probably to avoid dust. All basins and dressing-dishes were of glass or enamelled metal; those for receiving pus and discharges kept separate. Soiled dressings are received into a large hermetically-closing zinc vessel before being burned.

Every day after operation the walls, ceiling, and floor are washed down with a jet of water, the floor being also well brushed. Once a week the washing is performed with 1-20 carbolic acid solution.

By these means the risk of contamination from the air is reduced to a minimum.

Direct infection of the wounds, or infection by contact, was provided against from the following sources of danger:—

1. The hands of the surgeon and his assistants.
2. The instruments.
3. The sponges, tampons, and pieces of dressing.
4. The patient's skin or clothes.

1. Hands and forearms are first washed with soap and hot water, then plunged for a few seconds into alcohol, "à 90 degrés;" and, lastly, washed carefully in corrosive sublimate solution, 1-1000. All who came in contact with the patient are clothed, as a matter of course, in a washable smock-frock. The arms are left bare to above the elbows. The sponges, basins, etc., are washed at a special trough at the corner of the room opposite to that at which the hand-basins stand.

2. The instruments used by Professor Poncet were now placed entirely under his own control. They were laid out in groups on glass shelves of the glass instrument case referred to. Only two boxes—an amputation and a resection box—are used, and these were both of nickelled metal with metal fittings, thus avoiding the dust which collects in the ordinary cloth-lined wooden boxes. A special series of instruments were reserved for cutting up pathological specimens removed at operations. These specimens are, on removal, at once placed in zinc boxes kept for the purpose.

3. All the instruments had handles, smooth (without even the maker's name), and made of nickelled steel or German silver. A few hours before operation, all instruments are first sterilized for twenty minutes in melted vaseline at 120° to 130° C., and are then placed in 1-20 carbolic acid solution. All dressings, tampons, etc., are sterilized with super-heated steam. Sponges are seldom used, but are treated with the greatest care. The antiseptic solutions in use—all made with boiled water—are as follows:—Corrosive sublimate, 1-1000; carbolic acid, 5 per cent. and 2½ per cent.; boracic acid, 2 per cent. and 4 per cent.; chloride of zinc, 8 per cent. They are contained in large glass jars supplied with exit taps below, and having plugs of wool in their stoppers to filter the air that enters. For ligatures, Genoise catgut is used, sterilized by heat, and preserved in alcohol. Silk is prepared and preserved in the same way, and reeled off in the ordinary way. Needles, pins, metal sutures, etc., liable to rust, are in like manner preserved in absolute alcohol.

4. The patients are made to take a bath of 1 per cent. corrosive sublimate the night before the operation. The skin at and near the intended wound is first cleansed with soap and water and a nail brush, then with 1-1000 of corrosive sublimate, and, if necessary, with alcohol or ether. The patients are placed naked on the waterproof mattress of the operating table, and are then appropriately clothed in purified flannel with india-rubber over it. The advantage of this plan is that it prevents a chill during the operation, and insures asepticity of the clothing. Immediately after serious operations, the patients are wrapped

in warm washable bed-covers, which are washed afresh for each case. The usual coverings for common use have been discarded.

By these means the absolute disinfection of everything that comes in contact with the patient is insured. The next step desired by the author is to have a second theatre reserved for septic cases, leaving the other for aseptic ones.

In the October number of the same Journal, Professor Poncet narrates at length the results of three months' work in the new theatre. Out of 164 important operations, there were in all 7 deaths, of which 6 were quite independent of the operation. The seventh, after laparotomy, was caused by septic peritonitis, which was distinctly traced to infection from the sponges—a result which has led to their still more limited use. In every other case the fresh wounds have healed by the first intention without a trace of suppuration, septicæmia, or erysipelas.

Whether the precautions under the head of Direct Contact might not have sufficed, without the expensive arrangements involved in the theatre construction, is open to question. Still the author must be congratulated in having succeeded in planning and carrying out, down to the smallest details, arrangements for aseptic wound management as perfect as it seems possible for them to be in the present state of our knowledge. C. W. C.

Part Second.

REVIEWS.

A Text-Book of Human Anatomy: Systematic and Topographical, including the Embryology, Histology, and Morphology of Man, with special reference to the requirements of Practical Surgery and Medicine. By ALEXANDER MACALISTER, M.D., F.R.S., Professor of Anatomy in the University of Cambridge. London: Charles Griffin & Co.: 1889.

An Elementary Treatise on Human Anatomy. By JOSEPH LEIDY, M.D., LL.D., Professor of Human and Comparative Anatomy and Zoology in the University of Pennsylvania. Second Edition. London: Smith, Elder, & Co.: 1889.

A Manual of Practical Anatomy. By D. J. CUNNINGHAM, M.D., Professor of Anatomy in the University of Dublin. Part I.—Upper Limb, Thorax, Lower Limb. Second Edition, by the Author, assisted by H. ST JOHN BROOKS, M.D. Edinburgh: Maclachlan & Stewart: 1889.

THESE text-books on Human Anatomy are by teachers of great experience and original investigators of acknowledged eminence. We therefore turn to their works with the natural expectation of

finding not merely a summary of other men's observations and opinions, but a scientific exposition of the present state of anatomical science, tinged with the personal views of their respective authors.

Of these works, the most important is that by the erudite Professor of Anatomy in Cambridge. As is evident from its title, this text-book is a very comprehensive one, and it aims at being both a systematic treatise on anatomy and a guide to the student in the practical work of the dissecting-room. It begins with a brief sketch of the development of man, followed by an account of the structure of the tissues. We have then a systematic account of the skeleton, the various joints being described immediately after the bones that form them. The soft parts of the body are not arranged in systems—muscular, nervous, etc.—but in the order in which they are met with in the dissecting-room. This part of the work, therefore, is intended as a practical manual; and Professor Macalister defends this departure from the systematic method on the grounds that it is in that order that “the student learns anatomy in the only place wherein it can be learned, namely, the dissecting-room.” There is much to be said for this plan, but we suspect that the majority of students will continue to prefer a more portable manual for use while dissecting. To obviate this objection, the work might be bound in two parts, and in that form the second volume would make an excellent practical text-book. It is true that this part would contain an account of the microscopic structure of the various organs dissected, but although that is somewhat out of place in a dissecting-room manual, it does not add materially to its size. A more serious objection would be the omission of the anatomy of the joints, since these are described along with the bones, and no directions are given as to their dissection.

Throughout the entire work there is a constant reference to the morphological significance of the structures under examination; indeed, this aspect of anatomy, which in many text-books is entirely ignored, receives here due recognition. Dr Macalister's extensive knowledge of comparative anatomy enables him to speak with authority on many interesting but difficult morphological problems. This is especially the case with reference to the muscular system, and we may cite one example under this head:—“The levator ani is primarily a pubo-ischiatic depressor of the tail, but the atrophy of this organ and the enlargement of the pelvic outlet in man have modified the muscle. Its hinder ischiatic part attached to the rudimentary caudal vertebræ has become *coccygeus*; its ischio-fascial portion, which is inserted post-anally into the raphé by the approximation of its vertebral border to that of its fellow, forms a diaphragm for the pelvic outlet; while the smaller specialized pubo-anal and pubo-prostatic fibres respectively can elevate the anus and prostate.”

In addition to numerous morphological references, the work

abounds in curious and out-of-the-way information. Thus, in the section on the teeth we are told that not only Richard III., but also Louis XIV., Cardinal Mazarin, and Mirabeau had cut their incisors before birth. Again, in describing the palm we learn that the interdigital hillocks are named from thumb to little finger, *eminentiæ Veneris, Jovis, Saturni, Solis, and Mercurii*.

There can be no question but that this work is a very able and scientific treatise, and one that can be consulted with great advantage by teachers and senior students, but we doubt if it will be very popular as a text-book for the average student. The style is so condensed that it is by no means easy reading; and we confess that we should have liked the topographical relations of the heart, lungs, and various other organs described in a more complete and thorough manner. As a rule only one name is given for any particular structure; but we observe that in several instances names are used that are not commonly employed, and no reference is made to the usual designation.

The work is profusely illustrated, and possesses a good index.

Professor Leidy's work does not call for any extended notice. It is a systematic work, clearly written and well illustrated, but for various reasons it is not likely to supersede any of our recognised text-books. It is far from being up to date in the description of the topographical relations of the viscera. Thus nothing is said as to the relation of the cerebral cortex to the skull or scalp. There is no systematic account of the development of the body, and we have failed to find any reference to such an important practical subject as the descent of the testicle; and neither in the description of the peritoneum nor the tunica vaginalis is there the slightest notice of the original relation between them.

The nomenclature is peculiar, the names of the different structures being given as far as possible in English, but the synonyms are printed in small type at the bottom of the page.

The various parts of Professor Cunningham's work on *Practical Anatomy* have been noticed in this Journal as they appeared, and we need only say that this part fully maintains the high standard of its predecessors. This work is the best practical text-book in the English language.

Hunterian Lectures on Morbid Anatomy, Pathology, and Treatment of Hernia. By C. B. LOCKWOOD, F.R.C.S. London: H. K. Lewis: 1889.

THE three lectures given by Mr Lockwood, the Hunterian Professor of the Royal College of Surgeons of England for 1889, form a book of 165 pages, and are a valuable addition to the pathology of hernia and the *raison d'être* of the radical cure. The first lecture deals chiefly with the causes of hernia from the "Pathological Theory" point of view, more especially regarding as causes

the influence of the peritoneum and suspensory apparatus of the abdominal viscera, and the author in this lecture gives evidence of much original work in getting the subject matter together. It is a factor in the pathology of hernia which has been little worked at, and the author at the outset is under the difficulty, which he tries to remedy—no data to go by. Pathology is a departure from the normal, and the normal is got by taking the average in health; but here there is, in questions of length, attachments, and range of movement of the mesentery, no average ascertained. Quain, Treves, and others differ in their views regarding the simple question of the length of the mesentery at different ages, and we think the number of cases examined by Mr Lockwood insufficient to definitely settle the points at issue. He has, however, brought these important questions in the predisposition of hernia prominently forward, and others will no doubt supplement his observations.

The questions raised and the conclusions arrived at by the author will, however, do much to place the indications and contra-indications for the radical cure on a secure basis.

There are many important points in the treatment of strangulated hernia and in the radical cure referred to in the book, but very little which is new. We are glad the author does not mention, much less recommend, the extra-peritoneal operation, and that he recognises the value of the truss as a curative agent in hernia.

The statistics given at pages 109 to 112 are interesting, and show most clearly that herniotomy, even under unfavourable circumstances, is an operation which may be performed with comparative safety. We find the mortality of the 689 cases quoted less than three per cent.

The book is well written, but the photographs and charts do little to elucidate the text. The former want definition, due probably to the glossiness and reflection by the peritoneum of the subjects; the charts are in many instances quite unintelligible, and fail to simplify the statistics in any degree. It would be better to distinguish between the *ileum* or lower part of the small intestine and the *ilium* of the os innominatum by spelling the former with an *e* rather than with an *i*, as used throughout the book.

The Treatment of Internal Derangements of the Knee-Joint by Operation. By HERBERT WM. ALLINGHAM, F.R.C.S., Surgeon to the Great Northern Central Hospital; Surgeon to the Surgical Aid Society; Assistant Surgeon to St Mark's Hospital for Fistula, etc; late Demonstrator of Anatomy at St George's Hospital. London: J. & A. Churchill, 11 New Burlington Street: 1889.

WITHIN comparatively recent years the treatment of internal derangements of the knee-joint has received very special attention.

Mr Annandale has led the way in successful diagnosis and cure by operation, and others are following in his footsteps. Knee-joint derangements, the exact nature of which was formerly conjectured, are now exposed and set right under antiseptic precautions, and a very troublesome class of cases are being brought within the probability of certain cure.

In the present book of 165 pages, the author has set himself to discuss these internal derangements from the practical rather than from the pathological standpoint. He has collected notes of the various published cases, and has carefully studied the papers of Drs Scott Lang, Knott, and others, who have investigated the mechanism of the various conditions.

Mr Allingham has successfully treated eight such cases. His book, moreover, as a *résumé* of knowledge on an opening subject, will be welcomed by those who have no time to hunt up the separate papers in scattered journals. In the first chapter he speaks of the mechanical relations of the semilunar cartilages within the knee-joint, and of the symptoms and diagnosis of their various forms of displacement. In the second chapter he describes his method of operative treatment, and urges a vertical rather than a transverse incision. Probably this is not a matter of much importance, as cases seem to have done well after both forms of incision. Another point on which he lays stress is also of doubtful value. He urges that the sutures which unite the skin wound should also pass through the synovial membrane, so as to bring its surfaces together, and protect the joint from risk of contamination of blood, serum, or pus from the more superficial parts of the wound. He seems to forget, however, that should the wound go wrong and suppurate, the stitches or their tracks will guide the septic mischief directly into the joint. Surely a better plan would be the usual one of buried catgut stitches uniting the edges of the cut synovial membrane with separate superficial sutures for the margins of the skin. As to drainage, after having tried both ways, the author prefers the use of a drainage-tube for a day or two after the operation.

The third chapter is a collection of cases in which the semilunar cartilages have been operated upon.

In the fourth chapter the author shows how alterations of the ligamenta alaria may become a cause of internal derangement of the knee-joint. This has been hitherto almost an undeveloped branch of the subject, and Mr Allingham has done good service in working clinical and anatomical knowledge into a connected account of this form of internal derangement.

In speaking of the treatment of enlarged ligamentum alarium by section, the author makes a very curious pathological statement as a reason for the stitching the stump into the wound,—“Moreover, by cutting off the ligament, and dropping the stump back into the wound, a piece of fat would be exposed which is not covered by synovial membrane, and a raw surface be left, from which suppura-

tion might start, and end in destruction of the knee-joint." This seems to overlook the bacteriological causation of suppuration, and to assume that process to be some peculiar property of a raw surface of fat! This must have been a slip.

The fifth chapter on loose and pedunculated cartilages, and villous fringes, treats of several methods of dealing with these inconveniences, which have now been superseded by direct anti-septic incision.

The last chapter on Hydrop's Articuli chiefly follows Messrs Barwell and Macdonell.

For those who have no time to consult all the original papers on the subject, and even for those who have, we would advise the study of this book as an important guide to practice.

Suppuration and Septic Diseases. Three Lectures by W. WATSON CHEYNE, F.R.C.S. Edinburgh and London: Young J. Pentland: 1889.

THE subject of these lectures really is "micro-organisms." In the first lecture we have an account of the "pyogenic organisms;" in the second, of the conditions of the human body favouring or permitting the action of these organisms; and in the third, an account of the various relations and relative importance of these organisms, the condition of the tissues of the body, and other influences in the production of suppuration and septic affections.

Mr Watson Cheyne has represented the subject to his readers in a pleasing and instructive manner. The lectures were delivered in 1888, but by means of added notes they are brought up to the knowledge of the present day.

In his preface Mr Watson Cheyne refers to the work of Lister, Ogston, and Rosenbach as the three great landmarks in the history of bacteriological discovery.

A Practical Treatise on Eczema and its Treatment. By M. J. RAE, M.D., late Physician to the Blackburn and East Lancashire Infirmary, etc. London: J. & A. Churchill: 1889.

THERE are certain medical terms which have been seized on by the public, and from an imperfect acquaintance with their meaning, whose signification has been perverted or whose importance has been unduly exaggerated. Infection, tumour, cancer, and now eczema, may be cited as illustrations in point. That there is a morbid dread of infection prevalent in the popular mind can hardly be denied; and should any serious epidemic arise, this might have disastrous consequences. The terms tumour and cancer have been nearly eliminated from the vocabulary employed by a discreet

doctor when conversing with a patient. In the same way the idea of eczema among the laity is too much that of an intractable disease, constantly liable to recur, and with difficulty curable. Hence it is not surprising that in recent years several works devoted to eczema have appeared. We are, however, not quite sure if this most elaborate compilation of Dr Rae's is entirely calculated to dispel the false impression to which we have alluded. It has been said that the obstinacy of any complaint may to a certain extent be gathered from the number of remedies recommended for its cure, and a goodly if not a motley array is here provided. In the preparation of the volume Dr Rae has culled from many sources—we will not say good, bad, and indifferent, but assuredly with impartiality from ancient and modern alike. His descriptions are not always as clear as might be desired, but he has on the whole succeeded in presenting a picture of eczema in its several phases drawn with tolerable distinctness. His theory of the nature of eczema seems to be, "that there exists some peculiar idiosyncrasy or diathesis, or some innate susceptibility of the skin itself, or some inherent impressionable condition of the nervous system, which renders its relations with cell-life liable to be easily disturbed, and thus renders the skin obnoxious to the various causes, external or internal, which excite an eczema." Whether this makes our acquaintance with eczema any clearer or more definite our readers can judge for themselves. Dr Rae holds the views of Brocq, though without referring to his communication on the subject, "that when a case of chronic eczema presents itself in an individual of advanced age or of weak constitution and impaired health, and is known to be substitutive for bronchitis, severe dyspepsia, or other internal disease, palliative rather than energetic local treatment should be adopted, as the arrest of the eczema might lead to the development of the substitutive internal malady and serious results follow." With this all reasonable medical men will agree, the precise treatment being adapted to the particular case. The therapeutics of eczema are very fully stated, most of the new remedies or methods finding a place. A preference is expressed for the tincture of the perchloride of iron when ferruginous preparations are indicated, and of its value in eczema there can be no question; but it will scarcely be as readily admitted "that its curative action in scarlatina, erysipelas, and other exanthemata is now well established," unless with very considerable limitation. The work is one which the experienced physician may possibly find useful for reference, but the elaborateness of its details, and the multiplicity of remedies suggested for the same or closely allied objects, will prove extremely puzzling to the younger members of the profession who may consult its pages.

Injuries and Diseases of Nerves and their Surgical Treatment. By ANTHONY A. BOWLBY, F.R.C.S. London: J. & A. Churchill: 1889.

A RECORD of much patient investigation and research; an extensively and beautifully illustrated monograph on a subject not much understood; an invaluable work of reference, and a book that will repay investigation. Those who read Mr Bowlby's papers in the *Lancet*, which are the basis of this volume, will understand the above statement. Those who wish to know something about the surgery of the nerves will do well to study Mr Bowlby's publication. The book is large, and contains a great deal of material; but it is necessarily so, for it is the record of an immense amount of work and investigation. It will be eminently useful as a book of reference.

The Young Practitioner, with Practical Hints and Instructive Suggestions as Subsidiary Aids for his Guidance on Entering into Private Practice; being modified Selections from, with Additions to, "The Physician Himself." By JUKES DE STYRAP, M.K.Q.C.P., etc. London: H. K. Lewis: 1890.

The Young Practitioner is dedicated to Dr Webster Cathell, the author of *The Physician Himself*, and rightly, as both works have the same aim and employ much the same method. In both, the aim is to advise the young physician how to bear himself in the battle of life; how to deal with his patients and his professional brethren so as to give his talents the best chance, and to maintain the dignity of the profession. The books differ in many respects, just as practice in America differs from practice in England, and both differ in details as to what would be necessary advice to a young Scotch practitioner. For instance, Dr de Styrap thinks it necessary to warn his young friend against making special arrangements as to prescriptions and percentages with druggists. Surely that advice is not needed in Scotland? Frequent collections of debts are advised—half-yearly, or even quarterly sending in of accounts; cash payments are suggested. On the whole, the tone of the work is admirable. The golden rule is shown to be the real basis and motive of medical etiquette, and many excellent hints as to manner, dress, and deportment are given. You can't make a gentleman by writing out rules, but you can often prevent solecism of behaviour by a wise hint to a young man. In these latter days, when specialists secure nearly all the paying patients and quacks amuse most of the upper classes, who, as a rule, pay badly or not at all, this work may amuse the too great leisure of the young practitioner who, in an overcrowded profession, is waiting patiently behind his doorplate, and means to keep his hands clean from quackery and trickery.

On the Causes, Treatment, and Cure of Stammering. By A. G. BERNARD, M.R.C.S., L.R.C.P. Pp. 71. London: J. & A. Churchill: 1889.

DR BERNARD has written a useful little book. The twelve rules given are practical and clear, and we should think that a stammerer who really masters them and the 31 exercises which are advised will be greatly benefited, if not perfectly cured. The exercises, which consist of poems to be committed to memory, are well chosen, and we expect that physicians who have to treat stammerers will be aided by the book.

Dr Bernard thinks that there are at least 35,000 stammerers in Great Britain. In Prussia, statistics in 1830 proved that there was one stammerer in every 500 of the population.

As the book is intended for general readers, the prescription should have been omitted.

The Diseases of the Madras Famine of 1877-78. By ALEXANDER PORTER, M.D., F.R.C.S.I., M.R.I.A., &c. Pp. 247 and Index. Nine Illustrations. London: H. K. Lewis. Madras: Government Press: 1889.

DURING the Madras famine in 1877-78 the author of this interesting book was in charge of a famine relief camp at Royapettah, and he gives an account of the 3250 patients who were under his care. 1117 deaths took place, being 34.26 per cent. The results of 459 autopsies which were made are given in considerable detail.

The subjects treated of in this volume are—the Alvine Fluxes without and with intestinal ulceration, and with diphtheritic effusion, and cholera, followed by a carefully written account of the general pathology of these affections. The author's experience of dropsy, atrophy, fever, and pyæmia is next given, followed by a chapter on acute pneumonia and phthisis pulmonalis. In Chapter VI. seven local diseases are dealt with, viz., hepatic abscess, cerebral hæmorrhage, aphasia, cancer, ulcers, ulceration of the intestines, and enteritis. The chief value of the book lies in the careful account of the *post-mortem* examinations, the details of which are very full and clearly given, and the summary of the *post-mortem* appearances which the author gives is admirable. With regard to the illustrations, they are, with one exception, good copies taken from *The Medical and Surgical History of the War of the Rebellion*. Five appendices dealing with statistics are given, and the details regarding the weight of the body and of its organs, as well as the description of the bodily state of the patients, are of considerable interest. The index is very full.

Manual of the Public Health Acts. By J. EATON DYKES and DUDLEY STUART, Advocates. Edinburgh: Bell & Bradfute: 1890.

It has always seemed strange to us that no one has ever compiled a book embracing all the Scotch Statutes relating to Public Health. Perhaps during Sheriff Monro's lifetime others may have thought that in doing so they would be encroaching on ground which no one knew better than he did, and in this they were probably right; but since his death the want of such a book as we have now before us has made itself very generally felt. The present volume, although not containing all the statutes relating to Public Health, which would have rendered it a much more bulky volume, yet contains all those most commonly required.

The Public Health Act of 1867, the first of its kind, and marking the commencement of a new era in all matters relating to the health of the people, with its various amending Acts, has been carefully and profusely annotated, and we cannot too highly praise the discernment which has been used in this respect in bringing out the scope and meaning of the various terms. The authors have drawn largely on English cases, but as the law on both sides of the Tweed is almost identical, the English Act having followed and been founded on our Scotch Act of 1867, the decisions are applicable, and it is of great value to be able to refer to the necessarily much larger experience of the English Courts.

Besides the chief clauses of the Local Government Act there are two Appendices. The first containing the practical forms issued by the Board of Supervision, and various bye-laws recommended by them for the use of Local Authorities, such as those on the duties of medical officers and sanitary inspectors under the Public Health Act, Rules and Regulations for Common Lodging Houses, and the Dairies, Cow-sheds, and Milk-shops Order.

In Appendix II. there are the chief clauses of the Alkali Act; Factory and Workshops Acts, 1878 and 1883; The River Pollution Prevention Act, 1876; and the Infectious Disease Notification Act, 1889. There is also a copious and very carefully compiled index, a most necessary adjunct to a book of reference such as this.

It will thus be seen that we have a compact volume containing all the chief sanitary enactments up to date. We must congratulate the authors upon their work, and the publishers upon its excellent get up and opportune appearance at a time when Public Health occupies such a large share of attention throughout the country in connexion with the new County Councils; and we do not doubt that the volume will prove indispensable not only to medical officers and sanitary inspectors, but also to those councillors who are now responsible for the sanitary state of their counties.

The Year-Book of Treatment for 1890. London, etc.: Cassell & Company, Limited.

THIS annual is now well known. Its utility is beyond question. Though one or two of the sections may be considered defective by specialists, there is no doubt that as a whole it will be welcomed by the practitioner, who cannot afford time to wade through articles in weekly and monthly journals for the assistance that he requires in the treatment of obstinate cases.

American Resorts, with Notes upon their Climate. By BUSHROD W. JAMES, A.M., M.D., etc. Philadelphia and London: F. A. Davis: 1889.

THIS book is primarily "intended for invalids and those who desire to preserve good health in a suitable climate." It is written in the semi-popular style common to all such medical guide-books, and contains a good deal of information that will be as useful to the practitioner as to his patient. A translation of a portion of "Die Klimate der Erde" of Dr Woeikof is added. The index is very complete. The map prefixed to the volume may be an excellent one, but it gave so much trouble in unfolding, and seemed so likely to tear across, that we incontinently closed the book with maledictions on publishers who will persist in turning out maps in that style.

Medical Book-Keeping.

WE have received specimen pages of Dr Sheen's (Cardiff) system of Medical Book-keeping, his Handy Medical Visiting List and Temperature Charts. The latter are very neat, and of such a size that they can be readily inserted in any note-book. The Handy Visiting List is a weekly one, and may suit those medical men who prefer such lists. The Day-book and Visiting List are probably as simple as they can be made for the complex entries required by practitioners who dispense their own drugs. For our own part, we confess to a liking for a system which appears to us even simpler, but then every one prefers the system he works out for himself to all others under the sun; and those who have not, or who do not care to work out a system for themselves, may find Dr Sheen's very useful.

Habitual Drunkards.

MESSRS OLIVER & BOYD, Edinburgh, have published together in a convenient form—1. An "Explanatory Memorandum" of Mr Charles Morton's Restorative Homes Bill for Scotland. 2. A Report of a Meeting of the Legislative Committee of the British Medical Association to consider Mr Morton's Bill. 3. A Report in full of a Discussion on the same subject in the Edinburgh Medico-Chirurgical Society. 4. Resolution of the Society for the Study of Inebriety. 5. Resolution of Midland Medical Society on the same subject.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXIX.—MEETING III.

Wednesday, 4th December 1889.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. ELECTION OF NEW MEMBERS.

The following gentlemen were elected Ordinary Members of the Society :—Alfred W. Hughes, M.B., C.M. Ed., M.R.C.S. Eng., 42 George Square ; Thomas Proudfoot, M.B., C.M., M.R.C.P. Ed., 13 Lauriston Place.

II. EXHIBITION OF PATIENTS.

1. *Dr Kennedy* showed a boy, three years old, affected with RICKETS, and showing symptoms of PSEUDO-HYPERTROPHIC PARALYSIS. The chief signs of rickets were thoracic constriction at the level of the ensiform cartilage, curving of femora, knock-knee, and bending forward of lower end of tibiæ—all slight. The paralytic phenomena consisted, in a noticeable degree, of waddling on walking, the toes at the same time grasping the floor firmly, and the characteristic movements in rising from the ground to the erect position. These symptoms had been much more marked five months before, when they were quite typical, and improvement had since then been progressive. When a year old he had begun to walk, but an attack of measles threw him back, so that he made no effort till nearly two years old. He spoke quite as soon as other children. Inflammatory irritation between the glans and prepuce necessitated circumcision five months ago, the parents being warned before the operation of the probability, in any case, of increased paralysis. The only other treatment was massage of the legs and back, performed by the mother. Though under the impression at first that this was a case of commencing pseudo-hypertrophic paralysis, the marked improvement had led him to believe that the symptoms were only due to weakness of the muscles of the back and legs associated with rickets.

2. *Dr A. Miles* showed a CASE OF SKIN GRAFTING WITH SKIN OF DOG, and read the following notes :—Patient is a boy of 10, and somewhat delicate. He was treated in Mr A. G. Miller's Wards, Royal Infirmary. On 22nd April (a month before admission) he had his left leg scalded with boiling water. On 24th May he came to hospital. The whole of the skin from the middle of the patella to the ankle, with the exception of a small island, 2 inches by $\frac{1}{2}$ inch, on front of the tibia, was completely destroyed. Treated with boracic lint dressings for a fortnight, but no evidence of cicatrization. On 6th

June a young greyhound was killed, and the skin of the anterior abdominal wall dissected up in its entire thickness after having been shaved. This large flap was cut into strips 6 inches long by $\frac{1}{2}$ inch broad, and these planted on the ulcer. Smaller grafts were put on to fill up the interspaces. On dressing after three days, only one small graft was found to have failed to take. Cicatrization went on rapidly from the grafts, and also from the margins of the ulcer, and in six weeks the whole leg was covered with a strong cicatrix, with practically no contraction. It is now over three months since the patient was last under treatment, and he is attending school and in perfect health. It may be added that there is as yet no evidence of the reproduction of hairs and no secretion from the skin, but the sensation of the cicatrix is quite as good as that of other parts of the limb.

3. *Dr John Thomson* showed a CASE OF PROGRESSIVE IDIOPATHIC MUSCULAR ATROPHY in a young child. The patient was a girl aged 4 years and 5 months. At 12 months of age she was a remarkably fine strong child, and had then for two months been able to walk round the room holding on to the chairs. The weakness began soon after in the legs, and before she was 2 $\frac{1}{2}$ years, she could not stand at all. When 2 years and 4 months old, she was in the Children's Hospital under Dr Playfair, and at that time her arms and neck were unaffected. They became affected, however, about a month later. During last year the general weakness had increased slightly, but there was no great change. There was no history of any similar affection in any member of father's or mother's families. The child's attitude was strikingly expressive of her profound muscular debility. There was no extreme wasting of any muscles, nor any trace visible of hypertrophy or pseudo-hypertrophy. The feet were distinctly pointed, and the fingers had a tendency to become hyper-extended. There were no sensory symptoms except diminished sensibility to pain; the organic and skin reflexes were normal; the knee jerks were quite absent. The voluntary muscles of the trunk and limbs were all, or nearly all, affected more or less. Those concerned in ordinary respiration, speech, and deglutition, and those of the face and eyes, seemed unaffected. There was very little power of movement left in the legs and loins, and the back, abdomen, and neck were also extremely weak. The shoulders and arms were less affected. Most of the muscles seemed about normal in size; none were much wasted, and none visibly enlarged. A few felt harder than normal; the calves had the feeling of fatty tissue. Co-ordination was perfect. Electrical excitability had been tested by Dr Milne Murray, who found the faradic irritability considerably impaired, and the galvanic reaction much more so—in fact, scarcely to be obtained. The legs and feet were constantly cold. The case was regarded as probably one of primary myopathy belonging to the class described

by Professor Erb as the "juvenile form" of progressive muscular atrophy, but the pathology of it was very obscure. It differed from the previously published cases in many points, and the patient was very much younger than in any recorded case of anything-like equal severity.

III. ORIGINAL COMMUNICATIONS.

1. *Dr Wallace* read his paper on the ELECTRIC CYSTOSCOPE, which appeared at page 712 of this Journal.

The President thought the Society were much indebted to *Dr Wallace* for his lucid description of the cystoscope and the details that required to be attended to in its employment, as well as the record of the cases with which he had been able to illustrate its value. It was one of the advantages of their Society that the members were thus instructed in the technique of a new means of investigation by one who had had good opportunities of becoming more familiar with its use than the majority of them could possibly be. In exploration of the female bladder the cystoscope would probably be of more restricted application, because in most cases a slight and safe dilatation of the urethra allowed of its direct examination with the finger. In a case lately under his care in the Infirmary its use might have been of service. The patient had been in the ward some years ago suffering from hæmaturia, which was found, on introduction of the finger, to be due to villosities in the trigone and fundus of the bladder, with ulcerated spots between. Under the use of injections she recovered, and for five years was free from pain and bleeding. She returned, however, some time ago greatly reduced by recurrent hæmaturia. She had a cachectic look, and as the bladder felt thickened through the anterior fornix, he (the President) thought some malignant deposit must have taken place in the walls. She sank in spite of the use of styptics and stimulants administered internally and of astringent injections—among others, of perchloride of iron; and on post-mortem examination the bladder was found only to have the morbid changes that were noted as having existed years before.

Dr Cotterill said that while *Dr Wallace's* interesting paper did not lend itself to discussion, he was glad to have an opportunity of testifying to the ease with which the instrument was used in the cases he had examined with *Dr Wallace*, and the satisfactorily definite information which was to be got by its use. He thought the Society were much indebted to *Dr Wallace* for having brought the cystoscope under their notice.

2. *Dr Horsley* read his paper on CYST OF THE POSTERIOR EXTREMITY OF THE INFERIOR TURBINATED BODY, which appeared at page 631 of this Journal.

Dr Hunter recalled a case which occurred many years ago in his practice before laryngoscopy was much employed, and where a

young lady suffered from a cystic tumour in the post-nasal space which was dependent behind the soft palate, burst spontaneously, and afterwards gave no further trouble.

Dr Cotterill remarked that while credit was certainly due to *Dr Horsley* for the account he had given the Society of this rare growth, it was possible that cysts of this nature were not really so uncommon in this locality as *Dr Horsley's* paper might be supposed to infer. *Mr Cotterill* was sure that all surgeons who had any considerable experience in operating on so-called cases of mucous polypus of the nose could call to mind many cases in which the tumour, on the slightest touch of the forceps, collapsed entirely with a discharge of glairy fluid from the nostril and an absolute relief of the symptom of obstruction of the nares. Mucous cysts were common in the mouth, and there appeared to be no anatomical reason why they should not be so in connexion with the turbinated bones. *Mr Cotterill* believed, therefore, that the condition was not so rare as *Dr Horsley's* paper had suggested, and that they had been hitherto not unfrequently mistaken for the softer forms of mucous polypus.

Dr Horsley replying, said he had omitted to state that the patient described a sensation of something giving way at the back of her nose previous to her first visit. This sensation was followed by some relief of the asthmatic paroxysms. Probably spontaneous evacuation of the cyst, as described by *Dr Hunter*, occurred at this time. After this, the cyst either refilled or a new one formed. *Dr Cotterill* supposed these tumours were not so uncommon as was believed. He (*Dr Horsley*) contended that the condition was rare of description rather than of occurrence. But, while admitting the occasional extreme tenuity of mucous polypi, not only was this position a somewhat unusual one for their growth, but they were slow growing, whereas the tumour under discussion occupied only a fortnight in reaching its completion. Cysts might frequently occur in this region. He had no doubt it was so; his contention was that they had not been frequently described.

3. *Dr Croom* read his paper ON THE TECHNIQUE OF LAPAROTOMY, FROM AN ANALYSIS OF TWO HUNDRED CASES, which will appear in a future number of this Journal.

Mr Caird expressed the great pleasure which he had in congratulating *Dr Croom* on the pre-eminently satisfactory nature of the results he had obtained in his laparotomies. It was of interest to note that the methods of which the abdominal surgeon availed himself were in a manner the reflection of the history of progress; for while he generally used the ligature and dropped the pedicle, closing the wound every now and then, he had occasionally to fall back on the use of drainage-tube, clamp, and cautery, etc. In regard to matters of technique, he would like to know if *Dr Croom* had employed *Trendelenburg's* position of raised pelvis—and with

what result. Dr Croom had touched lightly on the subject of antiseptics. Some few gentlemen were prone to belittle the advantage of such aids, and he would like to know if those who disclaimed antiseptics boiled or purified their pedicle or ligature silk in any way, or used it raw. It should not be forgotten that Lister himself had indicated that the peritoneum, a huge lymph sac, was peculiarly fitted for absorption, and even differed from the other portions of the body in that it drained itself, and that in the hands of skilled ovariologists antiseptics would not effect such a change in the mortality as elsewhere. He (Mr Caird) thought that Keith had referred to this topic in one of his papers.

Dr Brewis rose to express his admiration of the valuable paper which had just been read. Abdominal surgeons, and especially the more successful among them, had not been in the habit of giving to the world the details of their technique. In describing their cases they elaborated the difficulties met with, but did not explain how these difficulties were overcome. So that the beginner learned little from those who were most competent to teach, but had to learn by experience for himself, too often at the expense of the patient, how to surmount difficulties. There were, however, some leading operators who were exempt from this omission, and Dr Croom was one of them. He was mindful that he was a teacher as well as an operator, and as soon as he had acquired the experience necessary to impart instruction on the technique of laparotomy, he had come forward to give them the result of his experience and his opinion as to how the details of laparotomy should be carried out. For that kindness the Society, and many others outside of it, were under a deep debt of gratitude to him. Dr Croom's results had been so remarkably successful, that his technique could lend itself to adverse criticism. Every abdominal surgeon, while recognising and paying heed to leading principles, differed somewhat from every other surgeon in the details of his technique. He sooner or later drifted into a routine of procedure which was more or less his own—only changing his procedure from time to time as exigencies arose. There was no one fixed technique essential to success, as operators following different methods had equal success. Dr Brewis's technique only differed in some few particulars from Dr Croom's. First, with regard to antiseptics, Dr Brewis formerly used a weak solution of carbolic acid for sponges and instruments, but as he had one or two cases suspicious of, and one case where there undoubtedly was carbolic acid poisoning, he modified his procedure to the extent, that during the operation he only used hot water; but previous to the operation the room, instruments, and sponges were thoroughly disinfected with carbolic acid. The latter were kept in carbolic solution, but on the day previous to an operation were removed from it, and repeatedly washed in water to get rid of the antiseptic. Since he followed this plan he had had no reason to regret it. There had been almost an absence of constitutional disturbance,

and there had been no sepsis. The anæsthetic Dr Brewis used was a mixture of ether and chloroform, one part of the former to two of the latter. It was given in a Clover's inhaler. The advantages claimed for this combination were that anæsthesia was rapidly produced, and a small quantity only was used—about 2 oz. in an operation of an hour's duration. Dr Brewis carried the ligature through the pedicle with a pair of blunt sinus forceps. This he considered was better than a sharp needle, which was apt to pierce a bloodvessel and give rise to a collection of blood between the layers of the broad ligament. He preferred, like Dr Croom, the Staffordshire knot, but as an additional security, he ran a continuous suture of fine silk through the cut edge of the pedicle. In cases where the Staffordshire knot was not suitable, he followed any method which he found to make the pedicle secure, remembering that it did not matter how the pedicle was tied as long as it was securely tied. Dr Brewis's practice with regard to drainage differed considerably from Dr Croom's, in that he (Dr Brewis) used the drainage-tube more frequently. While recognising the fact that the peritoneum had great absorptive powers, he was of opinion that absorption greatly depended on the inherent vitality of the patient, and that while in one patient blood and serum might be readily absorbed, in another the faculty might be almost absent, and fluids left in the peritoneum might become septic and lead to septic peritonitis. Dr Brewis drained in every case where the sponges did not come up dry to the surface. By following this plan the operation could be brought more speedily to a close; and if after a few hours the dressing was found dry, or nearly so, the tube could be removed without in any way interfering with the healing of the wound or the ultimate result of the operation.

Dr K. M. Douglas asked Dr Croom how he dealt with the superficial wound. In many cases one saw some time spent on the arrest of the bleeding from the vessels of the abdominal wall. Having seen on many occasions Dr Martin of Berlin perform laparotomies without applying any ligatures to these vessels, he would ask Dr Croom to acquaint them with his practice in that respect.

The President remarked that a claim had been put forward in the earlier part of Dr Croom's paper which it was interesting to find passing nowadays unchallenged in the Medico-Chirurgical Society. It was with reference to the class of medical men who had most right to perform such operations. It had been asserted at some of their meetings that the obstetricians ought to leave them to men possessing a special surgical genius for such work; but Dr Croom's claim for the right of the obstetrician to perform them had not even been criticised.

Mr A. G. Miller said that he had listened to Dr Croom's paper with great pleasure, and considered it a most valuable contribution to the literature of the subject. The class of cases in which he had

to perform laparotomy was different from that in which Dr Croom operated. The ordinary surgeon had worse cases to deal with than the ovariologist. They were mostly cases of intestinal obstruction, in which the patient was more or less collapsed, and otherwise in an unfavourable condition. He had noted with interest two points specially in Dr Croom's paper. First, a statement that peritonitis was no contraindication to opening the abdomen. Secondly, that cases of tubercular and purulent peritonitis were peculiarly suitable for operation, and did well. He would like to ask Dr Croom if he had any experience of septic cases, such as appendicitis with perforation, and what his opinion would be in regard to the comparative risk of opening the peritoneum in such cases?

Dr Croom desired to thank the Society for the kind and courteous manner in which they had received his paper. He was specially interested in the remarks of Mr Caird; and in respect of the point of eventration, he wished to say that he had tried the method suggested by Mr Caird of altering the position of the pelvis; but his experience had been unfortunate, for he had found that the patient herself was nearly suffocated. This might have been an accident; nevertheless, he had never tried Trendelenburg's plan again. He desired to thank Dr Brewis for the valuable criticisms he had offered. He quite agreed with Dr Brewis that it was a very little matter how the pedicle was treated, so long as it was treated tightly enough. Dr Brewis had already established his reputation in operative gynaecology, and he was interested to hear his opinions on antiseptics, which practically coincided with his own. He begged to acknowledge his indebtedness to Dr Brewis for pointing out to him his omission about the blunt-pointed needle, which, of course, he recognised as being of first importance. Mr Miller's remarks seemed to him most pertinent. He quite acknowledged that there was a very distinct difference between the laparotomy which usually fell to the lot of the surgeon and that which fell to the gynaecologist. In the one case the surgeon operated at the request of the physician only after all medical means had failed, and as a *dernier ressort*, whereas the gynaecologist operated purely on his own responsibility, and with entire charge of the case from the commencement. He was quite sure that this was the entire difference between the pure surgeon and the gynaecologist. He was very greatly indebted to Mr Miller for the kindly manner in which he had spoken of his paper. In reply to Dr Douglas, he begged to say that any hæmorrhage from the incision was immediately stopped by a few minutes' pressure by Pæan's forceps. He had never any trouble from this source. With regard to sewing up the wound, he preferred the simple interrupted suture.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LI.—MEETING III.

Wednesday, 8th January 1890.—Dr BERRY HART, President, in the Chair.

I. *Dr John Thomson* exhibited a patient with almost entire CONGENITAL ABSENCE OF THE RADIUS ON BOTH SIDES. The girl was 16 years of age, healthy, and, with the exception of the forearms and hands, well formed. The condition of the forearms and hands was exactly the same on the two sides. The ulna was only $6\frac{1}{2}$ inches in length, much curved, and thickened so that its lower end was $1\frac{1}{2}$ inches in diameter. The radius was represented by a wedge-shaped fragment of bone, not an inch in length, which was closely attached to the upper aspect of the carpus. The hand was small, and without a trace of a thumb; it was articulated, or rather attached by fibrous tissue to the side of the ulna at a right angle, and moved round it. The chief point of interest in connexion with the hand was the condition of the little finger, which was slightly larger, comparatively, than the other digits, and when at rest stood somewhat apart from the ring finger. The patient had acquired a considerable power of opposing the little to the ring finger, so that, in some sort, it took the place of a thumb, and she was thereby enabled to do a considerable amount of work with her apparently helpless hands. She could lift considerable weights, could button and unbutton her dress, could sew slowly, and could write wonderfully well. In sewing, the needle was grasped by the index and middle fingers, and pushed through the cloth by the distal joint of the ring finger. In writing, the shaft of the pen was held between the index and middle fingers, and the point was guided by the tip of the little finger resting upon it. The patient's relatives had all, as far as was known, been well formed in every respect. Dr Thomson thought the case might interest the Society, not only because it was an example of a somewhat uncommon malformation; but especially as the amount of use which the girl made of the deformed limbs helped to throw light on the prognosis with regard to the possibility of future usefulness which one might give in such cases.

II. *Dr J. W. Ballantyne* exhibited—(a.) A specimen showing PERITONITIS IN THE NEW-BORN INFANT. The child was born in the Royal Maternity on the 4th of November last. The mother, M. W., was 19 years of age, and a primipara; labour lasted for over twenty-seven hours, and was terminated with some difficulty by means of forceps; there was no tear of the perineum, but there was a small vaginal tear which bled freely. The vertex presented, and the head lay in the O.L.A. position. The child, a fully-developed female infant, weighed 8 lbs. 4 oz., and measured 23 inches in length; the head diameters were as follow:—O.M.,

5½ inches; O.F., 5 inches; S.O.B., 3½ inches; Bi-P., 3½ inches; and Bi-T., 3½ inches; whilst the circumferences were—O.M., 17 inches; O.F., 16 inches; and S.O.B., 13 inches. The placenta weighed 1 lb. 10 oz., and the umbilical cord was 23 inches in length. The mother had a normal puerperium; but the child died without being manifestly ill some thirty-two hours after birth. The abdomen was considerably distended, and gave a tympanitic note. With the permission of Prof. Simpson, I made frozen sections of the infant, as I wished to ascertain the relations of some of the abdominal and pelvic viscera; but on opening into the abdomen, I found that there was a distinctly pathological condition. The intestines, both large and small, were distended with fetid gas, fluid meconium, and milk curd; and, further, the intestinal coils were glued to each other, to the under surface of the liver, and to the pelvic viscera. On separating the opposed intestines, the peritoneal aspect of the bowel had a markedly granular appearance, but there was no fluid in either the abdominal or pelvic peritoneal sacs. There was, therefore, a recent dry peritonitis in the abdomen. In the pelvis there were signs of older peritonitis, for the right Fallopian tube and broad ligament were firmly adherent to the peritoneal aspect of the cæcum. The right Fallopian tube ran from the fundus uteri at first outwards for a very short distance, and then turned upwards and slightly backwards, it then made a sharp bend and passed downwards and slightly backwards, and then finally it passed outwards and slightly backwards to its fimbriated end. The ovary, which was slightly twisted on its long axis, lay posterior to the tube, and was directed outwards, upwards, and slightly backwards. Both the ovary and tube lay above the pelvic brim at the level of the fifth lumbar vertebra.

(b.) A specimen showing an ANTE-MORTEM CLOT IN THE HEART OF AN INFANT. The infant was born in the Maternity Hospital on 12th January 1889. The mother was a primipara of 22 years of age. The child presented by the vertex in the O.L.A. position, and the labour was normal. The child, a small female, weighed 6 lb. 12 oz., and measured 19½ inches in length. The placenta weighed 1 lb. 9 oz., and the cord measured 18 inches in length. Both placenta and cord were normal, and the mother made an uninterrupted recovery. The measurements of the infant's head were as follow:—O.M., 4½ inches; O.F., 4 inches; S.O.B., 3½ inches; Bi-P., 3½ inches; Bi-T., 2½ inches; and the circumferences were, O.M., 14 inches; O.F., 12½ inches; and S.O.B., 11½ inches. The infant seemed perfectly healthy, and lived till the fifth day, when it was noticed that its lips were blue and its pulse very weak; and in less than an hour the face became black, the pulse almost imperceptible, and the breathing rapid and shallow. In a few minutes the child was dead. On opening the thorax and heart, it was found that the right auricle was nearly filled with a

whitish-yellow clot and a quantity of pale yellow serum. Pro-longations from this clot extended for a short distance into the superior and inferior venæ cavæ, and in the left ventricle was a more recent red clot extending into the aorta. Microscopic examination of the right auricular wall showed slight myocarditic and well-marked endocarditic changes, whilst the blood clot was seen to be made up of a dense network of fibrin with red and white blood corpuscles lying in the meshes. The clot was noted to be firmly continuous with the endocardium. Between the endo- and myo-cardium were seen greatly dilated capillaries. The tricuspid valve was firmer and thicker than normal; but the other cardiac valves showed no morbid appearances. The foramen ovale was filled up, but not yet closed in by the membrane.

III. *Dr Fraser Wright* read his paper entitled, GYNECOLOGICAL CASES TREATED BY ELECTRICITY IN PROF. SIMPSON'S CLINIQUE, which will appear in a future number of this Journal. Discussion upon this paper was postponed.

ROYAL MEDICAL SOCIETY.

Jan. 10.—G. W. Sanders, M.B., in the Chair. *H. M. Chasseaud* read a communication on a Monster.

James Ritchie, M.B., read for *H. Dobie, M.B.*, a communication on a case of Abscess of the Brain.

R. Muir, M.B., gave a demonstration on the Blood, with special reference to Leucocytes.

R. J. A. Berry read a paper on Hospital Life in the Rotunda. The paper discussed the advantages and disadvantages of the Hospital in regard to teaching, and described the methods of conducting obstetrical work.

Jan. 17.—G. W. Sanders, M.B., in the Chair. *Harvey Littlejohn, M.B.*, showed five pathological specimens—(1.) A large Diverticulum of the Small Intestine. (2.) The Kidney of a woman who died of Heart Disease. The kidney substance had almost entirely disappeared, leaving several large cysts. The ureter was contracted to such an extent that nothing thicker than a knitting needle could be introduced into its lumen. (3.) An Aneurism of the Arch of the Aorta. The aneurism, which corresponded in size to a large orange, gave rise during life to no symptoms. The patient, a woman, aged 64, died suddenly. (4.) A Perforation of the Vermiform Appendix, taken from a boy who had been kicked in the abdomen, and thereafter suffered from acute peritonitis, which ended fatally on the eighth day. The question as to whether the kick had caused or induced the lesion was discussed. (5.) A Preparation, showing the result of an Experimental Stab on a Cadaver, exactly similar to the one described in the recent trial for murder at Perth—*Crown v. Robertson*.

James Ritchie, M.B., communicated a case of Epileptiform Neuralgia. The patient, a man of 50, came under the care of Professor Chiene in the Royal Infirmary, Edinburgh, early in June 1889. He complained of paroxysmal pain, accompanied by spasms in the right side of the face. The pain began fifteen years ago, its first situation being the right side of the lower jaw. From the first it was paroxysmal, coming on every quarter of an hour, and as frequently by night as by day. No cause could be assigned to the onset of the pain, and as medicinal treatment proved ineffectual, all the right lower molars and premolars were removed shortly after its commencement. This, however, did no good; the pain increased in severity and spread to the upper jaw, and about two years after its first appearance began to be accompanied by spasms of the right side of the face. During succeeding years the pain spread to the right temporal region and to the front of the right ear, and though there was an occasional temporary improvement in the symptoms, no permanent good resulted from any medicinal treatment. On admission, the patient was found to suffer the greatest agony from paroxysms of pain, which occurred every two or three minutes during the day, and every half hour or so during the night. The paroxysms began, and were most severe in the regions supplied by the inferior dental nerve, and spread to those supplied by the infra-orbital, nasal, supra-orbital, and temporal branches of the fifth nerve. They were accompanied by a tonic, succeeded by a clonic spasm of the right facial muscles. They came on while the patient was quite quiet, but also during mastication and articulation. There was no hyperæsthesia, and sensation was equal on both sides of the face. No cause could be discovered to account for the condition; the patient had always been healthy, and no neurotic taint seems to have existed in his family. There was, further, no history of syphilis. On 10th June Professor Chiene trephined the lower jaw below the sigmoid notch, and removed about half an inch of the inferior dental nerve, as it was in it the pain first commenced. The patient left the Hospital on 15th June with the wound healed by first intention, and from the date of operation up to the present time has had no return of the pain or spasms.

Jan. 24.—James Ritchie, M.B., in the Chair. *R. Muir, M.B.*, communicated a case of Addison's Disease.

R. O. Adamson, M.B., read notes of a case of Subacute Interstitial Nephritis, and showed specimens.

G. W. Sanders, M.B., opened a discussion on the Pathology and Treatment of Pneumonia, in which *R. O. Adamson, M.B.*, *E. G. Pilgrim, M.B.*, *R. D. Rudolf, M.B.*, *R. Cattley, M.B.*, and *G. E. Helme* took part.

Jan. 31.—*R. O. Adamson, M.B.*, in the Chair. *C. E. Gray* read a dissertation on Hypnotism.

Feb. 7.—G. W. Sanders, M.B., in the Chair. *A. G. Reid, M.B.*, read notes of a case of Abscess of the Spheno-maxillary Fossa.

R. J. A. Berry read a dissertation on the Relations of Medicine to Over-population.

Feb. 14.—A. L. Turner, M.B., in the Chair. *A. Miles, M.B.*, showed a variety of Instruments having relation to Antiseptic Surgery, the handles being made of metal.

A. L. Turner, M.B., showed a specimen of Sarcoma of the lower end of the Femur.

C. D. Sutherland read a dissertation on Traumatic Tetanus.

CARLISLE MEDICAL SOCIETY.

SESSION VI.—MEETING I.

Thursday, 14th November 1889.—*Dr Douie, President, in the Chair.*

The following gentlemen were elected members of the Society:—*Drs Stevenson, W. A. Macdougall, P. A. Lloyd, and Robinson.*

Dr R. Dundas Helm was unanimously elected Secretary for the ensuing year.

Dr Norman Walker showed a case of Multiple Sclerosis.

Dr Douie then delivered his presidential address on Medicine as an Art, and was awarded a hearty vote of thanks for his interesting paper.

Dr Page, of the Local Government Board, who was present at the meeting, made a few remarks on the recent cases of poisoning by diseased pork in Carlisle and district.

Dr Stevenson showed a specimen of Carcinoma of the Thyroid, and an Aneurism of the Aorta.

Dr Walker showed a portion of Temporal Bone removed for Necrosis.

MEETING II.

Thursday, 14th December 1889.—*Dr Douie, President, in the Chair.*

Dr Lediard showed a patient with a United Fracture of the Humerus after wiring.

Dr Graham showed a case of Excision of the Elbow.

Dr Lockie read a paper on the Functional Albuminuria of Adolescents, with suggestions as to treatment.

Drs Maclaren, Douie, Helm, and Lloyd took part in the discussion which followed, and *Dr Lockie* replied.

Dr Robinson read a paper on Treatment of Diseases of the Stomach by Antiseptic Methods.

Drs Maclaren, Douie, Helm, Devlin, Stevenson, and Graham made remarks, and *Dr Robinson* replied.

Dr Maclaren showed a Calculus removed from a kidney that day; and also Cysts from a Double Ovariectomy.

Dr Lediard showed a Spindle-celled Sarcoma from parotid region of an infant, a Round-celled Sarcoma from the muscles of the calf of a lad, and a Parovarian Cyst.

MEETING III.

Thursday, 9th January 1890.—*Dr DOUIE, President, in the Chair.*

Dr Lediard showed a patient after Removal and Reformation of the Lower Lip; also two cases after Excision of the Hip.

Dr Stevenson read a paper on Recent Cases of Psoriasis treated in the Cumberland Infirmary.

Dr Macdonald read a paper on a case of Imperforate Hymen with Retention of the Menses.

Dr Lediard showed a specimen of Cancer of the Jaw, Fibrocystic Myoma of Uterus after Apostoli's treatment, and an Abscess of Lower End of Femur with thickening of bone.

Part Fourth.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

SOLANUM CAROLINENSE IN EPILEPSY.—In the *Virginia Medical Monthly*, September 1889, Dr J. L. Napier reports a case of a woman who had suffered from epilepsy most of her life, in which the usual remedies had been employed without relief, but who was apparently cured by the administration of a tablespoonful of the tincture of horse-nettle three times daily. Other cases are also referred to, one being a dwarfed child who had been subject to convulsions all its life, wherein a cure was effected by this remedy; another was the case of a pregnant woman, suffering from convulsions due to albuminuria, in which good results had followed the use of this tincture. The preparation employed was that of a 20 per cent. tincture made from the berries, the dose varying from 10 drops to a drachm. Even larger doses can be given, and, in fact, the writer recommends the administration of the drug to be pushed until physiological effect—drowsiness—is procured.—*Therapeutic Gazette*, 15th January 1890.

BROMOFORM IN WHOOPING-COUGH.—In a recent number of the *Gazette* we referred to a communication of Dr Stepp as to the treatment of whooping-cough with bromoform. In the *Deutsche Medizinische Wochenschrift*, 31st October 1889, Dr Stepp publishes a second statement on this subject, in which he says that his list of cases so treated amounts to 100, and in no single case was there

a failure noted. He states, however, that he has found it advisable to change his mode of administration, and now gives the bromoform pure in 1 drop doses in a teaspoonful of water. On account of its high specific gravity, the bromoform sinks to the bottom of the spoon, and there forms an isolated drop. The teaspoon should then be carried well back into the mouth, and its contents rapidly swallowed; by this means all taste is avoided. His adjustment of the dose is as follows:—For children 3 to 4 weeks, 1 drop three or four times daily; in older nursing children, 3 drops, according to the intensity of the attack; in children of from 2 to 4 years of age, 4 to 5 drops three or four times daily; up to 7 years of age, 6 to 7 drops three or four times daily. Dr Stepp claims as to this mode of treatment that vomiting as an accompaniment was immediately arrested. The attacks also became shorter, and appetite rapidly returned, and perfect cure resulted in from two to three weeks. But small quantities of the bromoform should be ordered at a time, as it is very volatile, and it should be protected from light to prevent decomposition. Red bromoform should be rejected, since it is already decomposed and contains free bromine, and is consequently unsuited for administration.—*Therapeutic Gazette*, January 1890.

THE THERAPEUTIC PROPERTIES OF INFUSIONS OF YELLOW RASPBERRY.—In the north of Russia the infusion of yellow raspberry (*Rubus Chamæmorus*) enjoys considerable popular repute as an excellent soporific, an infusion of the flowers and leaves being used for this purpose. Dr Frinkowsky was the first to call attention to the diuretic effects of this plant, and Professor Popow has spoken in the highest terms of the diuretic effects produced by decoctions and extracts prepared from the flowers of the fresh plant. He has succeeded in extracting an acid, in the form of a colourless powder, which is slightly soluble in water, and very soluble in alcohol; this acid, with bases, forms crystalline salts, which are very soluble in water, and is to be regarded as the active principle of that plant. It is stated that this substance acts on the kidneys without influencing the beat of the heart. V. Bouchoueff (*Bulletin Général de Thérapeutique*) has recently conducted, in one of the medical clinics at St Petersburg, a series of experiments, with the object of determining the clinical value of the yellow raspberry as a diuretic, making use of an infusion prepared with 16 parts of the leaves to 180 parts of boiling water, of this 5 or 6 teaspoonfuls being taken each day. The patients to whom this remedy was given were illustrations of various forms of nephritis, cirrhosis of the liver, cardiac affections, cancer of the stomach, chloro-anæmia with cedema, hysterical epilepsy with palpitations of the heart, etc. In only one case of all under the author's care did this drug fail to produce a favourable increase in the diuresis. The observations, however, are not complete enough, and not sufficiently well

classified, to positively state the status of this remedy. It would seem, however, that the writer has obtained results which are sufficiently important to direct further attention to this plant.—*Therapeutic Gazette*, January 1890.

THE PHYSIOLOGICAL ACTION OF HYDROCYANIC ACID.—As is well known, hydrocyanic acid is one of the most active of all poisons, only 1 drop placed upon the conjunctiva serving to produce instant death in dogs. This lightning-like rapidity of action has stood largely in the way of the study of the *modus operandi* of this poison. In *La France Médicale*, 5th October 1889, Dr M. N. Gréhaut reports the results of a number of experiments which he has made to determine the physiological action of this substance, employing the method of dilution recommended by Claude-Bernard, which consists in injecting successively into the blood amygdalin and emulsin, thus producing prussic acid; or by diluting it to a 25 per cent. solution with water. Dr Gréhaut writes that, after slowly injecting into the jugular vein of a dog weighing 16 pounds amygdalin in $2\frac{1}{2}$ drachms of water, followed by injection into the same bloodvessel of 2 drachms of milk of almonds, in about three minutes the animal was greatly agitated, in five minutes the cornea was insensible, the respiration was completely arrested, while the beats of the heart still continued for a few minutes. On opening the thorax ten minutes after the commencement of the evidences of the poisoning, the heart was found arrested. Artificial respiration was employed in one animal poisoned in the same manner, but without producing continuation of the beats of the heart. Dr Gréhaut then injected into the jugular vein 20 minims of the emulsion of hydrocyanic acid, 100 to 400 of water. There was likewise considerable excitement, but the animal continued to breathe. Three minutes after the first injection, 15 minims were again injected, and about a moment later there was a temporary arrest of respiration, although the heart was still beating and the cornea insensible. After five minutes and a half there was complete arrest of the respiratory movements, although the beat of the heart continued for four minutes longer. Experiments made upon frogs lead to the same result—that is, arrest of the respiration before the heart was affected.—*Therapeutic Gazette*, January 1890.

TREATMENT OF HEPATIC JAUNDICE BY HYPODERMIC INJECTIONS OF PILOCARPINE.—Witkowski considers pilocarpine as almost a specific in the treatment of jaundice. Two years ago, he writes (*Bulletin Général de Thérapeutique*, October 12, 1889) that he had under his care a patient affected with nephritis, complicated with biliary calculi, enlargement of the liver, jaundice, ascites, and dropsy of the legs. This patient was 45 years of age, and seven years previously, during the progress of a pregnancy, she commenced to suffer from pains in the right side, which greatly

increased after delivery, and were accompanied by the development of jaundice. Treatment by Carlsbad waters produced somewhat of an improvement, but the jaundice as well as the hepatic colic returned regularly at each menstrual period. This condition continued to increase in severity for a period of four years, and when she first came under the care of the author her condition was extremely serious. Two injections of pilocarpine (half a syringe-ful of a two per cent. solution) produced notable relief. Hepatic colic disappeared completely, even although morphine had previously proved inefficacious, and the liver became less painful to pressure. Under the influence of injections of 1-6th of a grain of pilocarpine, administered once or twice daily for three weeks, the jaundice as well as the hepatic pain and the enlargement of the liver completely disappeared. For three years the patient remained perfectly well, and the author states that he has treated thirty analogous cases in a similar manner, in every instance with the most satisfactory results. He notes, however, that the treatment was inefficacious in cases of jaundice resulting from tumours of the liver; and he makes the statement, that when in doubtful cases if pilocarpine, employed from ten to sixteen days, does not cause the disappearance of jaundice, the conclusion may be positively formed that the case is one of a malignant nature. He therefore recommends the use of pilocarpine in all cases of jaundice, provided the condition of the heart will permit.—*Therapeutic Gazette*, January 1890.

EUCALYPTUS IN SCARLET FEVER.—A safe and non-disagreeable antiseptic for use in cases of infectious diseases and offensive cancerous ulcers, and one that will be readily tolerated by the patient, is a great desideratum. Carbolic acid as well as iodoform are both offensive and poisonous, while either of these properties applies to the great majority of all the antiseptics in common use. Oil of eucalyptus is a strong antiseptic, which may be used freely without danger to the patient, and its use is not attended by any disagreeable odour or other unpleasantness. In the *British Medical Journal* for October 26, 1889, Mr J. Brendon Curgenvven writes that he has recently used it in the treatment of scarlet fever with much success, and that he has recently employed it in four cases, each of which occurred in a family where there were other children who had not had the disease, and in which cases the fever disappeared in a few days, and at the end of a week or ten days the patient joined the rest of the family without communicating the disease to any of them; further, there was not any general desquamation, it occurring only in those parts where the rash was thickest. The writer's method was to administer the oil internally in 1 to 4 drop doses every four hours in an emulsion, as it is then more equally diffused through the menstruum, and is better borne by the stomach. A much more important part of the treatment,

in our opinion, is the recommendation of the author to use with the spray-diffuser the eucalyptus disinfectant around the bed at frequent intervals, sprinkling it on the floor of the room or evaporating it on a hot fire-shovel; and more important still, that the patient be rubbed all over the body with this oil, not allowing any portion of the skin to escape. This is to be done night and morning for the first few days, and then at night till ten days have gone by, the head and hair being subjected to the same treatment every three days, and at the end of the week a bath of the eucalyptus. The eucalyptus soap may be used every other night in addition to the other modes of employment of the eucalyptus. Mr Curgenvén states that the free use of it was unattended by any ill effects in any of his patients or their attendants, and he believes firmly that it has the power of destroying the septic germs of scarlet fever and other contagious diseases.—*Therapeutic Gazette*, January 1890.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Centralblatt für Bakteriologie und Parasitenkunde, No. 5, 1890. —Prof. E. Klebs of Zurich gives the results of his examination of the blood in influenza patients. He first examined it in cover-glass preparations, as it was obtained from a prick of the finger-tips, and used oil immersion lenses, $\frac{1}{4} \times \frac{1}{4}$ of Zeiss, for his observations. With good illumination he observed beside the quite unaltered red corpuscles occasionally an enormous mass of tiny, rapidly motile particles, reflecting light strongly. Size, form, and movement of those particles agree closely with those which he has noticed in true pernicious anæmia; but in this latter disease they are never present in such numbers. Another difference is that he did not notice any so-called microcytes, considered by him to be fragments of burst blood corpuscles, so that those are two essential differences between the blood of influenza and anæmia perniciosa.

Further important peculiarities were found in the hæmatozoa of a fatal case of influenza. Two hours after death fluid blood was taken from both ventricles of the heart under every antiseptic precaution, and collected in sterilized vessels. When examined shortly after, besides the small, lively, motile monads already mentioned, from 1 to 1.5 micromillimetres, others moving more slowly were also seen. They were long-oval in shape, and in the long axis about 2 to 3 mikos, the largest 4 to 5, and about 2 to 3 in breadth. Whilst the smallest forms presented a butterfly sort of movement, the greater ones showed slight peristaltic contractions of the body, most pronounced in the somewhat pointed extremity, which Klebs considers to be the head. Many of those organisms, particularly the medium forms, lie on the rim of the red

corpuscle, or are to be seen inside its ring. In the fresh preparations it could not be made out whether they were free in the plate-shaped depression of the corpuscle or in the substance of the same, or also between two adhering corpuscles. It was therefore necessary to stain to settle this point, and Ehrlich's methylene blue succeeded admirably.

The form and position of the flagellates could now be seen much better than in unstained specimens. Those with most lively movements took on a light blue shade without suffering much diminution of motility at first; soon, however, the motion slowed, and ceased when the substance of the monad became dark blue. In favourable circumstances a rigid rod-like process was observed projecting from the monad, and was about the length of the monad's diameter. Klebs considers this rigid appendix to be a sort of sheath, from which the flagella proper issue, although he has not yet succeeded in rendering them visible.

Furthermore, in those methylene blue preparations it is most clearly seen that a great portion of the flagellates are in the interior of the blood corpuscles. Generally two or three up to five are interned. All forms are to be found, the smallest as well as largest, and Klebs believes he has also seen in the former the flagellate process. The very large monads show a somewhat wavy contour, and on their surfaces traces of a folding or membrane are to be seen, as indicated by axial markings. Sometimes these bodies lie so massively in the interior of the corpuscle that it appears as a dark blue, sharply contoured mass of a spherical or oval form, on which only here and there one can discover a clear rim. By the motions and rolling about of the discs containing monads, the intraglobular position of the intensely coloured organisms is rendered absolutely certain.

The condition of the red corpuscles, into which the flagellates have penetrated, also deserves particular notice. In stained preparations they are marked out by their spherical shape, whilst the other blood discs are either platter-form or crenated. The contents of those corpuscles are not stained so intensively, or only a red-yellow or green colour, as in normal corpuscles; the alteration of form is therefore the result of the penetration of the organisms. The secondary alterations of the substance of the red corpuscle present themselves in two ways: either the stained red substance is partly dissolved, and the remainder forms half-moon masses in the concavity of which the successfully penetrating monads lie, or the substance seems clearer than under normal conditions and without the blue stain. This last is the case when a very great number of monads are present in the interior. One may therefore suppose that the monads gradually destroy the colouring stuff of the red corpuscles, and perhaps absorb it into themselves.

Klebs thinks it premature and difficult to say much as to the belongings and development of those bodies; but he is convinced

that in the same blood the bigger forms appeared with increasing age of the specimen; but he does not commit himself to saying that there is any connexion between the smaller and the larger oval forms. Systematically the bodies belong to the Rhizomastigina, the first of the monadina family, which present themselves in simple mouthless forms with one to two flagella.

In all diseased processes brought about by hæmatozoa of the protozoa class, the more or less continued fever of diseases caused by fungi is wanting, as well as the degenerative changes of the glandular and muscular systems and the splenic enlargement. In malarial fever, as also in pernicious anæmia, the intermitting character of the fever is striking; in the one regular, in the other irregular. In influenza also a repeated occurrence of febrile condition, generally called relapse, takes place; here also there might be, as cause of relapse, the developmental phases of the micro-organisms; perhaps the intraglobular resting forms and the free interglobular ones change with each other, the last appearing in the acute phases of the process. This consideration has some relation to relapsing fever, as in it free spirilla appear during the attack; and also it calls to mind quartan malarial fever, with its motile flagellates. Bacteriologists now seem to be coming to a belief that spirilla are only a developmental phase of an organism belonging to the protozoa. One may also call to mind the mode of spread of malarial fevers, which become pandemic like the influenza, so that one must suppose extensive, long-continued transport of organisms by winds.

Berlin. Klin. Wochens., No. 5, 1890.—Professor Rosenbach of Breslau speaks of his experience of influenza. The most interesting form of the disease is not that with pronounced catarrh of the respiratory organs, but the pure form, marked out as a peculiar group of diseased symptoms by headache, vertigo, muscular pains, particularly in the back, feeling of weakness, and fever, without palpable disease of any organ; whilst the catarrhal form, whether complicated with anginous troubles or severe bronchitis, leaves always room for doubt whether we have to do with an anginous fever or a naso-bronchial catarrh from mere cold.

The pure cases seem to begin *suddenly* with a more or less severe rigor, while the catarrhal ones often have an extraordinarily long prodromal stadium, sometimes from five to ten days. The febrile stadium of the typical disease never seems to exceed two or three days, while the catarrhal one may continue for weeks with remissions and relapses. The temperature is during the whole course seldom 39° Cent. Vertigo and lumbar pain are less pronounced; but, on the other hand, severe pains in the chest are felt, and bronchitic sounds are to be heard, commonly over the curvatures of the ribs and the lower parts of the thorax laterally. It is noteworthy that in the pure form, even when convalescence is begun, there

are frequent vomitings, gastric pains, and diarrhoeas, for which no particular cause can be found. It is also to be noted that the stomach symptoms are not accompanied by a coated tongue.

The very fugitive erythemata which accompany both forms of the disease in its first stage deserve particular mention. They show themselves mostly in women on the forearms, neck, and upper part of the breast, only seldom on the abdominal region. In one case the rash resembled a not fully developed urticaria. The exanthem lasts about two days, and no cuticular desquamation was ever noticed.

In the pure form it is also interesting to note the oedema of the eyelids, sometimes slight, at other times as pronounced as in nephritis or trichinosis.

In connexion with the catarrhal phenomena, which Rosenbach considers a mere complication, and to belong as little to the essence of the disease as a bronchial catarrh does to the typhoid it may complicate, it was noticed in a great number of cases that there was a great tendency to the formation of small catarrhal or broncho-pneumonic foci in the posterior part of the left lower lobe, but that the infiltration was not obstinate.

The development of a severe typical coryza was only seen in a minority of the cases, but generally there was more or less pronounced swelling of the nasal mucous membrane. Perhaps this may indicate the port of entry of the noxious agent, and explain the severe frontal headaches which sometimes endured after defervescence.

Neither by percussion nor palpation could any splenic enlargement be made out in any case.

The number of cases of croupous pneumonia which came into hospital during the height of the epidemic was disproportionately large. A connexion between pneumonic sickness and influenza, in the sense that a preceding stage of influenza had prepared the ground for pneumonia, or that a typical case of influenza had passed directly into the croupous form of lung inflammation, could not be made out, and Rosenbach is inclined to deny this causal nexus, with the proviso that a central croupous pneumonia can be easily overlooked, or at its onset cause no symptom demonstrable by physical examination.

Prognosis was usually a favourable one when all cases with a preponderating catarrhal character were excluded, or those where severe lung complications happened, and made one suspect that one had to do with affections which prevailed also at other times when weather influences were unfavourable, and are dangerous to weakened and aged people.

The circumstance that the catarrhs and respiratory diseases and death-rate were all largely increased does not show that influenza played its rôle here, but only means that the noxious agent causing the influenza is favoured by or accompanied by a series of climatic

alterations in the widest sense, which must be looked upon as injurious to the well-being of man, particularly those engaged in out-of-door avocations.

As to the micro-organism of influenza, if there is one, it appears that, from the coincidence of so many diseases and increased death-rate among people whom the influenza spared, it must need for its development, in quite peculiar fashion, the co-operation of certain climatic factors which cannot yet be exactly defined and circumscribed.

As to its contagiousness, Rosenbach completely denies it. As to its therapeutics: after it became evident that the greater number of pure cases ended soon in health, it was seen that medication could hardly lighten the suffering or shorten the duration of the process; nevertheless, not to allow theoretical considerations to have any influence over therapeutics, treatment with the usual antipyretics was instituted, but the results were not very encouraging, as the patients so treated had many annoyances from the medication without experiencing any curtailment of the duration of the disease. With few exceptions, antipyrin, antifebrin, soda salicylate, and quinine brought on tinnitus, increased the vertigo, and rendered the gastric symptoms worse. Antipyrin, phenacetin, etc., had little influence over the headache; wet cloths to the forehead or painting the nasal mucous membrane with a 1 per cent. solution of cocaine did more good.

The respiratory phenomena were treated with the usual expectorants, and, above all, with small doses of morphia; the gastric symptoms were treated with dilute hydrochloric acid.

The most important part of the treatment of influenza seems to be *rest and care*. He who seeks his bed as soon as possible, refraining from work, and does not leave it too soon, at least not before the cessation of muscular pains, will weather the attack quickly and without discomforts in the future.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

THE USE OF PAQUELIN'S THERMO-CAUTERY IN CUTANEOUS AFFECTIONS.—Unna thinks that the following among other conditions are incomparably better treated, in the present state of our knowledge, by the Paquelin than by other agents:—1. Inveterate eczema of the anus, scrotum, and vulva. It is well known that eczema in these situations may show an obstinacy scarcely met with elsewhere. This is due partly to the proximity of the apertures of mucous membranes, and the presence of secretions from these canals; partly from the intense itching connected with the concentration

of nerve terminals, so that the scratching makes treatment fallacious; and, finally, from the difficulty of applying remedies quite satisfactorily. Should the disease persist in spite of well-devised measures, should there be increase of connective tissue and epithelial overgrowth, so that the parts acquire a horny or warty aspect, the deliberate application of the broad cautery, so as to induce a burn of the second degree, is recommended. General or local anæsthesia is needed. The after-treatment consists of moist compresses or pastes. As lotions, a 5 per cent. borax lotion, or a 2 per cent. resorcin one are suitable, or the following paste: $\mathcal{R}$ Ol. lini, liq. calcis, zinci oxidi, cretæ præp., $\overline{\text{aa}}$ 25·0; iodoformi, 5·0–10·0. In this way cases which have caused indescribable annoyance for years have been quite cured in fourteen days. 2. Leukoplakia oris. Unna has in former years treated this affection—usually caused by syphilis and smoking, or by the latter alone in non-syphilitic cases—by many remedies. The best results were obtained by chromic acid in the case of patches, by nitrate of silver and iodoform for fissures. In very mild cases the use of continuous mouth washes of borax gave better results than did balsam of Peru, though this is useful. It is self-evident, though not universally known, that the absolute disuse of tobacco is essential, and that general anti-specific treatment does not exert the least influence on the complaint. For this, too, the Paquelin is most suitable. After chloroform has been administered, or cocaine freely used, the parts, in particular the fissures, are to be energetically cauterized. Where there are thickened masses, the first eschar is removed, and the cautery used once more. The after-treatment consists solely in mouth washes of borax. $\mathcal{R}$ Sodæ boratis, 8·0; aq. distill., aq. menth. pip., $\overline{\text{aa}}$ 100·0.—M. Some of this is taken into the mouth, kept there some minutes, then allowed to escape, and a fresh supply taken in. This is continued for half an hour, and repeated at intervals of two hours for a like time. At night the burnt surfaces are painted with a 2 per cent. or 3 per cent. solution of nitrate of silver. In the day time the alkaline lotion is used to prevent fresh induration of the epithelium. 3. Angiomata oris, etc. These are best treated by the glowing Paquelin after a previous application of cocaine. If the nævi are extensive, one must proceed slowly, advancing from the periphery to the centre. 4. Lupus erythematosus. Here recently the Paquelin has replaced many milder and simpler remedies.—*Monatshefte für praktische Dermatologie*, 1st November 1889.

THE EXTENSION OF HERPES ZOSTER ALONG THE ARTERIES OF THE SKIN, AND ITS RELATION TO THE ACUTE EXANTHEMATA.—Pfeiffer, from an analysis of 117 cases, excluding those of herpes labialis and progenitalis, lays down the following propositions:—1. The vesicles in herpes often follow exactly the course of the arteries. The area of distribution of the eruption corresponds to

that of the capillaries of the smaller arteries in the skin. 2. The pathological alterations in the Gasserian ganglion and in the spinal ganglia which have been described are not the causes, but the results of the herpetic processes. 3. Injuries to the arteries or capillaries sustained in the incubation period of zoster determine the local situation. 4. The prodromal symptoms of zoster, the course of the fever, bilateral situation or recurrences, the acquired immunity, the epidemic character, the contagiousness, the sequelæ, the microscopic appearances, the process of cicatrization, etc., all find an explanation, if we include zoster in the variola forms of infectious diseases. He thinks that the epithet "zoster," descriptive of localization, agrees better with the idea of following the course of the cutaneous arteries than of the nerves. He illustrates this by the case of the upper part of the thorax in front; while each side is supplied by continuous nerves, arteries from different sources supply the sides and the part near the sternum. Hence he found that in 36 of 42 cases of zoster of this region no vesicles were found on or near the sternum. There is a symptom seldom mentioned, the acute and painful swelling of those lymphatic glands which receive the lymph vessels of the affected region of skin. Some authors, as Lesser, say this is constant, and present even in the most limited eruption of zoster. As regards the pathological alterations which have been believed to bear on the nervous origin of zoster, the author observes that no single recent case has been examined post-mortem, only secondary changes due to tuberculosis, cancer, pyæmia, etc., as shown by the literature of ten examples which he has collected. In addition to the epidemic character, the clinical course, and the extension along the arteries, a fourth point speaks for the view of placing zoster beside the acute exanthemata, viz., the microscopic appearances. The author has found in the rete, and in the fluid contents of the vesicles, even in the early papular stage, specific cell forms not hitherto described. Once seen, these are easily recognised in the papillary layer of every vesicle in zoster. Though the view that zoster is an infective disease, which acts on the skin through the medium of the blood current, leaves much unexplained, it still accounts for more of the peculiarities of this disease than the theory at present prevalent.—*Monatshefte für praktische Dermatologie*, 15th November 1889.

THE CONTAGIOUS NATURE OF SYCOSIS.—Brooke is of opinion that much of the want of success which attends the treatment of sycosis is due to confusion as to the cause and course of the affections so designated. He believes that true sycosis, as distinguished from *tinea barbae*, may be acquired by contagion, and, therefore, that the division into parasitic and non-parasitic sycosis is not a correct one. Sycosis so acquired affects almost exclusively those who frequent the lower-class barbers' shops, where no great amount of care is exercised as to the cleanliness of the utensils. The his-

tory of the cases is singularly uniform. The most typical are those of workmen who are shaved but once a week, on Saturday night or Sunday morning. On Tuesday or Wednesday they notice a localized redness and slight irritation, with the formation of pustules, a common point of origin being among the group of thick hairs immediately below the lower lip, which the barber is in the habit of "shaving up" pretty vigorously. Shaving, however, is not the only method of propagation, for the same disease occurs in the moustache, occasionally in the whiskers which have never been touched by the razor, and with far less frequency again in the scalp, eyelashes, axillæ, and pubes. In the pus in sycosis Bockhart has found the staphylococcus pyogenes-cereus et albus, and inoculation of the cocci produced pustules. An eczematous surface may thus become sycotic, as beneath the nostril. The treatment Brooke recommends is, should there be much inflammation or eczema, the application of a lukewarm poultice of an antiseptic starch paste (made from starch powder 1 oz., boracic acid 30 grains), to be changed three times daily. This helps to soothe the inflammatory condition, to clean the skin from crusts and scabs, and to soften and empty the pustules. As soon as possible, epilation and shaving must be begun. The ointment which he finds generally effectual is composed as follows:—

R	Hydrargyri oleatis, 2½ per cent.,	. ʒj.
	Ammonia sulpho-ichthyolici,	. ℥ xx.
	Acidi salicylici,	. gr. x.
	Olei lavand.,	. gutt. ij.
Ft. ung.		M.

This should be kept applied on strips of lint or linen. It is by no means always absolutely necessary to shave, but the stubbly condition of the hair produced by infrequent shaving seems the most irritating to the follicles, and most provocative of relapses. Hence the full growth of the hair is the next best alternative to regular daily or bi-daily shaving. External influences have not infrequently a distinct modifying effect on the disease; thus the sudden advent of cold wet weather, to which the patient may have been exposed, and internal causes, such as dyspepsia, nervous depression, anæmia, and struma, are apparently answerable in some cases for sudden relapses or very prolonged duration.—*British Journal of Dermatology*, December 1889.

TREATMENT OF TINEA TONSURANS.—Unna regards chrysarobin as the most effectual remedy we possess for the mycoses of the skin, its drawback in tinea tonsurans being the risk of its causing conjunctivitis. To obviate this he causes the hair to be cut very short. A circle of zinc gelatine or zinc glycerine jelly is now painted round the forehead, sides, and back of the head. The whole area of the scalp included within this must be carefully anointed with a strong chrysarobin pomade, such as—

R	Chrysarobini, . . .	5.0
	Acidi salicylici, . . .	2.0
	Ichthyoli, . . .	5.0
	Ung. simpl.	ad 100.0

A piece of guttapercha tissue reaching to the centre of the circle of glycerine jelly is now placed on, secured by painting over with another coating of jelly, a strip of muslin placed over the jelly, and over all a flannel skull-cap, fastened by strings. In course of twenty-four hours the cap is removed, the impervious covering slit across at one side and thrown back, the head wiped dry, and then fresh pomade applied, the guttapercha replaced, and the opening closed with a fresh piece of muslin plaster, and the cap replaced. If this is carefully done, at the end of the fourth day, when the first course of chrysarobin is ended, only the upper edge of the glycerine jelly should be stained with the chrysarobin. Should, however, the stain have reached the outer margin from want of care, all that is needed is to wipe off the stained part and renew the glycerine jelly. On the fourth day the cap is removed, the chrysarobin salve wiped off completely, and replaced by an ichthyol salve of 5 per cent. strength. This is intended in the remaining three days of the first week to cause the separation of the horny layer impregnated with chrysarobin rapidly, and without irritation, and to restore the subjacent skin to its normal colour. Now, for the first time, at the end of the first week, one can without any risk wash off the coating of jelly completely *from before backwards*, and cleanse the entire head with oil and soap. The diseased parts now stand out sharply as white patches against the neighbouring sound parts, and are more numerous than were anticipated. The second cycle now commences, and is to be carried out in the same manner as the first. In Unna's experience a third and a fourth cycle of one week each are sufficient to complete the cure, but more may be needed in old and severe cases. Before the treatment and at the end of each week some twenty hairs are to be removed, and after being placed in tubes of agar gelatin, are subjected to cultivation. In this way the progress of the cure is tested. The growth of the fungus becomes steadily less rapid and less abundant, till the results are sterile at the fourth week. A full account of the method of cultivation and the mode in which diminution of the activity of the parasite is tested is furnished by Dr von Sehlen, Unna's assistant.—*Monatsshefte für praktische Dermatologie*, 15th December 1889.

SURGICAL PERISCOPE.

By A. G. MILLER, F.R.C.S.E.

TREATMENT OF SPINAL CARIES AND FRACTURE OF THE VERTEBRÆ BY EXTENSION FROM THE SHOULDERS AND HEAD.—Dr H. C. Wood, of Philadelphia, uses extension in a somewhat novel way. After the application of a plaster jacket, shoulder and head straps are attached to the jacket and head, and extension made over the head

of the bed. As many as 80 lbs. may be attached. The head of the bed may be elevated, as the foot is in extension downwards. The loops for the shoulders should be applied before the plaster fixes. The head straps require to be made separate.—*Therapeutic Gazette*.

TREATMENT OF SPINA BIFIDA BY EXTIRPATION AND OSTEOPLASTY.—Dr Zenenko, of St Petersburg, considers that surgical interference is called for, because the mortality (in Russia) is enormous. The removal of nerves with the sac apparently causes no "discernible disturbances in the functions of any organs." Restoration of the vertebral canal seems to remove functional disturbances. The osteoplastic operation consists in transplantation from rudimentary laminæ or the posterior surface of the sacrum. Dr Zenenko reports two successful cases—one a child, the other an adult.—*Annals of Surgery*.

ETIOLOGY OF MALIGNANT TUMOURS.—Esmarch, of Kiel, considers that sarcoma may be due to a predisposition to connective tissue proliferation, derived from syphilitic antecedents. He holds also that many new growths supposed to be malignant are really syphilitic or tubercular, especially laryngeal, intracranial, and abdominal tumours.—*Annals of Surgery*.

RAPID CURE OF ANAL FISTULA.—M. Longo, of Paris, accomplishes this by excising the entire fistulous track, and bringing the raw surfaces together with sutures. Cure generally takes place within ten days. M. Longo does not perform this operation if there are hæmorrhoids.—*Bulletin Général de Thérap.*

CHLOROFORM INHALATION, if long continued, gives rise to fatty degeneration of many organs, especially of the liver, in animals. In the human subject persons dying soon after chloroform narcosis have manifested fatty degeneration of the liver, heart, kidneys, etc. These degenerative changes may, in some cases, have been caused or accelerated by the action of the chloroform. On the other hand, persons with fatty organs are less able to stand the physiological effects of chloroform.—*Lancet*, Nov. 23, 1889.

DR LOVETT, of Boston, U.S.A., gives salicylic acid to children affected with strumous diseases when there is evidence of otitis (night cries and limb jerking), and where there are vomiting and high temperature. This, however, is only as an "adjunct to proper mechanical treatment."—*Boston Med. and Surg. Journal*.

DR S. B. WOODWARD, of Boston, has collected 105 cases of antiseptic opening of joints for loose bodies, published during the last fifteen years, and beginning with one by Sir Joseph Lister, operated on in 1874. The knee was the joint affected in all but one case. There was only one death—from erysipelas. In one case an exostosis was removed; in another a sarcoma; in another a vascular tumour; in yet another a fibroma. In two instances bullets were removed, in two pieces of loose bone, and in two fatty tumours. In almost all the remainder loose cartilages were the occasion of the arthrotomy. The 740 loose cartilages were removed by 92 operations.—*Boston Med. and Surg. Journal*.

RESECTION OF THE KNEE.—"Prof. Ollier has lately performed his fiftieth total resection of the knee, and presented to the Medical Society of Lyons one of the patients he had operated on last. As a precautionary measure, Dr Ollier practises osseous suture, but believes that this would not be required if one could be certain of having but one dressing to make. To avoid the common difficulty encountered in the removal of the sutures, he employs the so-called tubulated suture, consisting in threads passed within a tube, and then in a perforated shot, and then fastened by crushing the latter. Ollier's statistics are divided in two periods. In the first, which occurred before the days of antisepsis, he had but one success out of seven cases. In the second the results are far superior, for, taking only those patients operated upon since 1885, to the number of twenty-six, he had but three failures. The first was a case of operative death, the two others were due to tubercular granulations and tubercular meningitis. It may be said that in those patients in whom suppuration does not occur, a cure is the invariable rule. Prof. Ollier states that in young subjects he is a believer in the conservative treatment by immobilization; but whenever the patients, after having worn a bandage for several years, suffer after its removal, resection should be done, it being the operation of election in cases of suppurative osteo-arthritis of the knee. As a matter of fact, abrasions, scrapings, synovectomies, are operations giving chances of success in the child, but in the adult they are dangerous and ineffacious."—*International Journal of Surgery*.

TWO HUNDRED AND FIFTY EXTIRPATIONS OF THE THYROID GLAND, by Th. Kocher, M.D.—"Six years ago the author reported 58 cases of extirpation of the thyroid gland, and computed the mortality of the operation as 13·9 per cent. Since then he has performed 250 operations with 6 deaths, a mortality of only 2·4 per cent.; and if we exclude the cases in which the operation was done for malignant struma or the goitre of Basedow's disease, the mortality sinks to only 0·8 per cent. On the ground of these statistics Kocher maintains that the operation, when practised for simple goitre, is perfectly free from danger, independent of the size of the growth and the age of the patient. The author has not found it necessary to modify the technique of the operation. He warns us that in ligating the inferior thyroid artery at the point where the vertical portion of the vessel becomes horizontal, we should exercise especial care to avoid wounding the recurrent nerve and the cardiac branches of the sympathetic. Of especial importance is also the most scrupulous antisepsis of the wound. To prevent the cachexia which follows complete extirpation of the thyroid gland, it is necessary to leave behind any portions of the gland still capable of performing their function. The following are the author's conclusions:—1. Extirpation is indicated in malignant and inflamed goitres and in diffuse hypertrophies of the thyroid gland; it is contra-indicated if healthy gland tissue is

absent on the other side. 2. Enucleation is indicated in cystic goitre, that is, goitres in which a cyst forms the main portion of the tumour, and in cases of isolated large nodular goitres which are embedded in well-preserved gland tissue. 3. Evacuation is indicated in cases of isolated large and small nodules of soft consistency occurring in comparatively well-preserved gland tissue, and in cases where large nodules are present in immovable goitres, if the nodules are soft and are surrounded by a vascular zone. 4. Resection is reserved for the numerous class of cases which do not fulfil the above indications. Contra-indications are malignant and immovable goitres and those which are the seat of infectious inflammation. 5. Ligature of the thyroid arteries is indicated in vascular goitre, either as a method of treatment or as introductory to a subsequent partial extirpation or resection. Only those arteries should be tied in whose districts the changes are most marked."—*International Journal of Surgery*.

Part Fifth.

MEDICAL NEWS.

LIST of the Successful Candidates at the recent Competitive Examination for Commissions in the Medical Staff of Her Majesty's Army:—

Order of Merit.	Names.	Total Number of Marks.	Order of Merit.	Names.	Total Number of Marks.
1.	Jackson, R. W. H.,	3005	6.	Whiston, P. H.,	2825
2.	M'Loughlin, G. S.,	2935	7.	Bray, G. A. T.,	2765
3.	Beveridge, W. W. O.,	2905	8.	Mawhinney, R. J. W.,	2750
4.	Smithson, A. E.,	2860	9.	Parry, H. J.,	2700
5.	Forde, B.,	2835	10.	Ferguson, J. D.,	2660

BRITISH MEDICAL SERVICE.—List of Surgeons on Probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations, 3rd February 1890:—

No.	Name.	Combined Marks.	No.	Name.	Combined Marks.
1.	Hughes, M. L.,*	5512	5.	Waller, H. J.,	4968
2.	Mould, W. T.,	5362	6.	Winter, H. E.,	4766
3.	Bewley, A. W.,	5180	7.	Moores, S. G.,	4730
4.	Stone, C. A.,	5076	8.	Way, L.,	4666

* Gained the Parkes Memorial Bronze Medal.

INTERNATIONAL MEDICAL CONGRESS.—To arouse interest in the tenth *International Medical Congress* (which is to be held in Berlin from the 4th to the 9th August 1890) amongst medical men abroad, special committees are being formed in different countries. These committees will have charge of the invitations issued in Germany, and will direct their attention particularly to providing means for the dispatch of exhibits. It is hoped that the scientific exhibition will be distinguished by its comprehension of the most

important results and methods of work. Such committees have already been formed in Holland under the presidency of Professor Stokvis, and in Denmark with Professor Lange as chairman. Professor Mosso in Italy, Sir William MacCormac in England, and Professor Grainger Stewart in Scotland, have undertaken the formation of similar committees; there is also a prospect that other nations will follow their example. In this way the co-operation of scientific men all over the world will be assured to the great undertaking, and as a consequence its success will be certain.

It is so seldom that anything new goes down here without a German *imprimatur*, and so very seldom that the Germans return the compliment, that we must most heartily congratulate Dr Robert Saundby on the honour that has been done him in having his *Lectures on Bright's Disease* translated into German. The new title reads as follows:—“*Vorlesungen über die Brightsche Krankheit*, von Dr Robert Saundby, arzt am General Hospital, Birmingham, Autorisirte Deutsche Ausgabe von Dr W. Lewin, praktischer arzt in Berlin. Mit. 55 Abbildungen, Berlin, 1890. Verlag von August Hirschwald.” To mark how highly these lectures have been appreciated, we may mention that the right of translation has been paid for.

OBITUARY.

THE LATE DR JAMES STEELE BOE.

THE late Dr J. S. Boe was born at Dunblane, Perthshire, 9th June 1853. He was the eldest son of the late Rev. James Boe, Dunblane, and was educated at Blackford. The remainder of his education was passed at Wallace Hall Academy, Closeburn, Dumfriesshire, under the able and cultured scholarship of the late Crawford Tait Ramage, LL.D. He became a clerk in the service of the Bairds (the ironmasters) at the age of 16. He was very much liked for his singularly obliging, frank, and earnest spirit while in this capacity. It was here he conceived the desire to become a medical man. Rev. Mr Ker, Kilwinning, being made aware of this, took a special interest in him, and gave him all needed assistance for the Medical Preliminary, which he successfully passed, thereafter entering on the regular course of a medical career. Besides attending classes at the College of Surgeons, he supported himself in part by working as a clerk; and notwithstanding the extra labour, he kept up a first rate position in his classes, generally speaking, all through the course. After obtaining his L.R.C.P. & S., he filled various positions as assistant, in all of which he obtained a very high reputation for his skill, tact, and energy. Publicly and privately he was very highly esteemed as a particularly straightforward, genial, and kind-hearted gentleman. He was afterwards appointed Medical Officer for the parishes of Durness and Eddrachillis, Sutherland, and for the space of seven years held this post. He was held here in such high regard as a

medical man of unusual ability that he was presented before leaving with a very handsome testimonial. His work here was of a particularly arduous nature, on account of the excessively long distances he had to cover to see patients, and his naturally strong constitution was also severely tried by the most trying of climates. He showed his presence of mind and self-reliance in a marked way by performing tracheotomy with success on an old woman with a penknife, unassisted, and by the light of a single candle in a hovel.

Leaving Sutherland he was appointed Medical Officer under the Parochial Boards of Yester and Garvald, in the county of Haddington. The people here recognised in him a man well versed in all the branches of his profession. But they also found him in no less degree a frank, straightforward, genial man. He had been there but little more than a year and a half when he died of inflammation of the lungs on 29th January 1890. He was buried on 1st February 1890, in the churchyard of the Cathedral Church of Dunblane. The day bore striking testimony to the esteem in which he was held, and, we may add, in which his revered father's memory was held, the funeral being attended by the closest and dearest friends and relations of both. Dr Boe leaves a widow and four of a family to mourn his early and premature death.

CORRESPONDENCE.

(To the Editor of the Edinburgh Medical Journal.)

THE FIRST CÆSAREAN OPERATION IN GREAT BRITAIN AND IRELAND?

It has for a long time been somewhat humiliating to be obliged, under the teaching of the late Dr Thomas Radford of Manchester, to give the credit of the initial gastro-hysterotomy in the United Kingdom to an illiterate midwife of Charlemont, County Armagh, Ireland, who operated on 9th January 1738. It was enough to be forced to credit the first Cæsarean delivery in North America (1769) to a slave-mother of Jamaica, who used the knife upon herself; as also the first on record in the United States (1822) to a quadroon of New York State, of the age of 14, who did the same thing. But I am happy now to find from original sources recently consulted that Dr Radford made a mistake of twenty years in the date of the second case in his table, which should have read 29th June 1737. The first recorded case, therefore, belongs not to Ireland, but to Scotland, and to Mr Robert Smith of Edinburgh, whose patient was a small rachitic dwarf, living in the Canongate, having a pelvis flattened antero-posteriorly and an incurved sacrum.

It is possible that this may have been the earliest operation of its kind in Great Britain; but we have reasons for believing that it must have had predecessors, which, being alike fatal, were not reported, even by an eye-witness, as was this one, twenty-one years after its performance.

Prof. William S. Playfair of London argues from the play of

Macbeth that the expression "untimely ripped" was an indication of great age in the Cæsarean operation in England, Ireland, and Scotland; but we cannot agree with him. Shakespeare obtained the historic statements of his play from the chronicles of Raphael Hollinshed, published in 1577, who makes Macduff say, "I was not born of my mother, but was *ripped out*." This work had several authors, and the part referring to Macbeth was a translation from the *Scotorum Historiæ* of Hector Boece, who is believed to have published his work in 1527, when he was about 62 years old. Boece is not generally regarded as a very reliable historian, and is believed to have been given to romancing, which was the fashion of his day. It is possible that Macduff may have been ripped out by the thrust of a cow's horn; or the tale may have been founded upon an actual occurrence known to Hector Boece, but belonging to another subject. The term "ripped out" has a significant meaning, and applies to the work of the cow's horn, under the thrust of which quite a number of women have been suddenly delivered. It is strange that cattle-horn deliveries have been apparently so rare in the United Kingdom, only one case being on record, when there have been six pregnant women ripped open in the United States and Mexico during the last forty years; and there were, at the last report, three *ripped out subjects* living—two men, aged respectively 37 and 22 years, and a girl of 8, with the mother of the first of the three. No less than fifteen cases of goring in pregnant women are on record, of which eleven opened the uterus in advanced pregnancy; the other four did not miscarry, and but three of the fifteen were lost: five ripped-out children lived.

ROBERT P. HARRIS, M.D.,
Philadelphia.

22nd January 1890.

PUBLICATIONS RECEIVED.

- Ambulance Leaflets, Nos. 1-4. Crosby Lockwood & Son, Lond., 1890.
- EDMUND ANDREWS, M.D., and EDWARD W. ANDREWS, M.D.,—Rectal and Anal Surgery. W. T. Keener, Chicago, 1889.
- JAMES BRAITHWAITE, M.D.,—The Retrospect of Medicine. Simpkin, Marshall, Hamilton, Kent, & Co., Lond., 1890.
- S. V. CLEVELAND, M.D.,—Spinal Concussion. F. A. Davis, Philadelphia, 1889.
- J. R. AINSWORTH DAVIS, B.A.,—The Flowering Plant: as illustrating the First Principles of Botany. Charles Griffin & Co., Lond., 1890.
- P. S. HAYES, M.D.,—Electricity and the Methods of its Employment in Removing Superfluous Hair and other Facial Blemishes. W. T. Keener, Chicago, 1889.
- JOSEPH JONES, M.D.,—Medical and Surgical Memoirs, Vol. iii., Parts 1, 2. New Orleans, 1890.
- WESLEY MILLS, M.A., M.D.,—A Text-book of Animal Physiology. D. Appleton & Co., New York, 1889.
- J. L. MILTON,—Pathology and Treatment of Diseases of the Skin. Henry Renshaw, Lond., 1890.
- E. SCHMIEGELOW, M.D.,—Asthma considered specially in Relation to Nasal Disease. H. K. Lewis, Lond., 1890.
- N. SEHN, M.D., Ph.D.,—Intestinal Surgery. W. T. Keener, Chicago, 1889.
- JAMES STARTIN,—The Pharmacopœia of the London Skin Hospital. Harrison & Sons, Lond., 1889.
- Statistical Report of the Health of the Navy for 1888. London, 1889.
- JUKES DE STYRAP, M.K.Q.C.P.,—The Young Practitioner. H. K. Lewis, Lond., 1890.
- Transactions of the American Ophthalmological Society. Hartford, 1889.
- Transactions of the Pathological Society of England. Smith, Elder, & Co., Lond., 1889.
- I. BURNBY YEO, M.D.,—Food in Health and Disease. Cassell & Company, Lond., 1889.

Part First.

ORIGINAL COMMUNICATIONS.

I.—ON THE SENILE HEART; ITS SYMPTOMS, SEQUELÆ, AND TREATMENT.

By GEORGE W. BALFOUR, M.D., LL.D., Physician to Chalmers's Hospital.

(Continued from page 608.)

ANGINA PECTORIS in its most exquisite form is rarely seen before middle life, and well-marked angina¹ is a common accompaniment of the senile heart, though it may occur at any age.

Pain in the region of the heart is common enough at all ages and from many causes. Apart from inflammatory affections, it is rarely of much consequence till after middle life, even though it be more or less distinctly anginous in character. For angina is but a symptom; and a pain in the heart associated with lesions similar in character to those we know to accompany fatal angina is no more entitled to be stigmatized as pseudo-angina than the lesion is to be called functional because both happen to occur in early life and to be curable. But there are plenty of heart pains which are not angina, and it is of consequence to differentiate these for prognosis, and especially for treatment. Thus the constipation, so common an accompaniment of chlorosis, is very often associated with neuralgic pains which radiate from the *scrobiculus cordis* over the edge of the left false ribs, and sometimes shoot into the cardiac area itself. Torpor and congestion of the liver, so usual an accompaniment of gastro-duodenal dyspepsia, is often associated with pain below either clavicle about the second interspace. This probably arises from irritation of the phrenic nerve shooting as pain into the upper intercostal nerves. On the right side this simulates lung disease; on the left it is often regarded as a heart pain. Intercostal myalgia and neuralgia often encroach upon the

¹ The short angina is as common nowadays as the long angina, and to be regarded as the only correct pronunciation. This is based on the supposed connexion with *ἀγγών* (*strangulatio*), and also on some passages in certain of the Latin poets. Thus Plautus says, "Sues moriuntur angina acri acerrume," *Trinummus*, Act i. sc. 4, line 139. But *acri* has here, unfortunately, no MS. authority. Lucilius says, "Insuperato abiit quem una angina sustulit hora," Lib. xxx. 34 (93). And Quintus Serenus Ammonius says, "Angina vero sibi mixtum poscit salinum;" or as in other editions, "Angina jam vero mixtum sale poscit acetum," *De Medicina Præcepta Saluberrima, versibus hexametris*, line 282, or in some editions, line 278. In the best editions angina is made short, in ordinary editions it scans long.

cardiac area and get referred to the heart; and, finally, the heart itself may suffer from burning, stinging, or cutting pains, the exact cause of which it may not always be easy to determine, but which are probably always either of rheumatic or gouty origin. These varieties of cardiac pain are not, however, difficult to differentiate from one another or from angina. But when an exaggerated myalgia—infra-mammary pain—presents itself to the excited imagination of a neurotic sufferer as a serious affection of the heart, it is apt to be dignified with the title of pseudo-angina. The apparent severity of the pain seeming to justify the name, while the well-marked neurotic elements of the case and the restless tossing of the limbs are held sufficient to warrant the prefix.¹ Doubtless in a severe fit of true cardiac angina the patient dare scarcely breathe till the pain passes off; but all attacks are not so severe as this, and a certain amount of jactitation is sometimes observed; while in the angina associated with aortic regurgitation, forced inspiration and violent movements of the arms are occasionally resorted to with the object of relieving the agonizing pain, and sometimes successfully.² As some of the acknowledged causes of angina may be present in the young as well as in the old, we are justified in regarding as true angina any paroxysmally recurring cardiac pain which cannot be referred to any of the varieties of neuralgia just described, even although it occurs in a young person, and may be associated with more or less jactitation. Of this there could scarcely be a better example than the following case:—In September 1888, a young married woman was sent for my opinion, with the following history: "M. S., æt. 25; married five years ago; has had two children, the last of them a month ago; has hereditary predisposition to angina. About eight years ago she had diphtheria with pericarditis, from which she made a good recovery under the care of the late Dr Kelburne King. She was married five years ago, became pregnant, and during the first six months she suffered much from attacks of syncope. She made a fair recovery from childbirth. During the last three and a half years she has suffered increasingly from syncopal attacks, preceded by or accompanied with pains of an anginous nature. She derives considerable benefit from nitrite of amyl inhalations, which cut the attack short. She was confined of her second child about a month ago, and recovered strength very slowly, until digitaline was administered, when she improved rapidly." I found that Mrs G.'s heart was well contracted and slightly thumping in its action from three of Nativelle's granules having been taken daily for some time. She stated that the anginal attacks were always pre-

¹ A tabular statement of the contrasted signs of true and false angina will be found at p. 75 of Anstie's *Neuralgia and its Counterfeits*, London, Macmillan & Co., 1871; and also at pp. 361, 593, and 625 of Huchard's *Maladies du Cœur et des Vaisseaux*, Paris, Octave Doin, 1889, where the whole subject is very fully gone into.

² Vide Balfour's *Clinical Lectures on Diseases of the Heart and Aorta*, second edition, pp. 273 and 306.

ceded by pallor of the face and fingers, that she could move about freely during the attack, and that it was always relieved by stimulants or by nitrite of amyl inhalations. The symptoms and history of this case showed the attacks to be probably due to arterial spasm throwing an undue strain upon a feeble spanæmic heart, which had been somewhat dilated, the nervous phenomena being due to instability of the nervous system. Evidently a case liable to be branded as hysterical or pseudo-angina, but really a case to be treated as a true angina occurring in a young neurotic female, and from a curable cause, with, therefore, a favourable prognosis. As to her present condition, I lately (1890) received the following reply on inquiry:—"I may report favourably as to Mrs G. The anginous character of the attacks became less marked, and her general health much improved. She has since had another baby, making a good recovery."

Like other neuralgiæ, angina originates in lowering of the function of the nerve affected. The pain itself is usually referred to mid-sternum, just over the cardiac and aortic plexuses, and the nerves affected are either the branches composing those plexuses or some of those nerves which go to make them up, such as the pneumogastric or the sympathetic. There is positive proof that the afferent nerve of the heart, the superior cardiac branch of the *vagus*, does contain sensitive fibres in the lower *mammalia*, and there is also reason for supposing that the sympathetic may contain sensitive nerve fibres. In regard to man, I presume this matter must for ever remain incapable of proof. We know, however, that the sympathetic nerve is the accelerator and augmentor nerve of the heart, and that when this nerve is stimulated we get increased action of that organ followed by exhaustion, the symptoms of katabolic action.¹ It is through the sympathetic that the heart is called upon for increased exertion, and when from any cause the heart is only imperfectly able to respond, it is the function of this nerve which is impeded; and this hindrance to action comes to the cognizance of the person affected as an agonizing pain at mid-sternum, shooting into those nerves with which the sympathetic is embryologically connected.²

The pain of angina even in its mildest form is a dull and agonizing ache; when severe it feels as if a mailed hand grasped the chest in the cardiac area and squirted through its fingers

¹ For an account of the *vagus* as the anabolic nerve, and the sympathetic as the katabolic nerve, and their relation to each other in the general metabolism of the heart, I may refer to a paper by W. H. Gaskell, on the Structure, Distribution, and Function of the Nerves which innervate the Visceral and Vascular Systems, in *The Journal of Physiology*, vol. vii. p. 1, especially at pp. 41 and 46.

² "It is by no means unfrequent that the excitement takes its starting-point in an internal organ supplied by sympathetic nerves, while it is chiefly felt in some external part. Of this the pain running down the left arm in disease of the heart is a familiar instance."—*Studies on Functional Nervous Disorders*, by C. Handfield Jones, M.B., London, 1870, p. 8.

flashes of excruciating agony up to the left shoulder joint, sometimes into both shoulder joints, extending down to the elbow or along the ulnar nerve to the fourth and third fingers on the left, or on both sides. Occasionally the pain shoots up the neck, generally on the left side, or into the *scrobiculus cordis*, more rarely down the loins and legs. There is a feeling of choking, but the breathing is quite free, and is only hindered by the dread that the slightest movement might precipitate the end which seems so terribly near. The countenance may be pinched, ghastly pale, and covered with beads of perspiration (*facies Hippocratica*). But often the face is quite unchanged, save only for an anxious and somewhat haggard expression. In the angina that occasionally complicates aortic regurgitation or indicates substernal aneurism, the pain is more acute, less oppressive and appalling, and it is sometimes associated with so much jactitation as to simulate a pure neurosis.

The causes of angina may appear to be various, but they are all of a character likely to depress the dynamic force of the nerve implicated, or of the heart itself, which is the automatic source of its own energy. Pressure upon some of the nerves of the cardiac or aortic plexus is a fruitful source of angina. This pressure may be produced by a tumour, often a very small one; by a small substernal aneurism, which usually escapes detection; or by a dilated aorta in the course of aortic regurgitation.

Sclerosis of the coronary arteries is one of the most frequent concomitants of angina, but as sclerosis of the coronaries is often present without angina, it is obvious that the angina is not due to the sclerosis, but to some result of sclerosis not always present in sufficient force. Fatty degeneration of the muscular fibre is a frequent result of sclerosis, and is often found where angina has been present during life. But fatty degeneration is also found where there has been no angina; like sclerosis itself it must therefore be regarded as a mere concomitant and not a cause. On the other hand, fatty degeneration is due to faulty metabolism from an imperfect blood-supply to the parts affected; an imperfect blood-supply is a frequent result of coronary sclerosis, it is the one factor this has in common with fatty degeneration, and not only with it, but also with every other known case of angina. Among these we may reckon embolism or thrombosis of the coronary arteries, diminution of the calibre of these vessels at their origin at the base of the aorta, or in their course through the heart, by inflammatory, atheromatous, or syphilitic processes. On rare occasions the heart in late life becomes enlarged beyond the feeding powers of coronary arteries congenitally deficient in size or in number, as happened in the case of Dr Arnold.¹ More commonly

¹ Dr Arnold died at 47 of his first attack. "The heart was rather large. . . . The muscular structure of the heart in every part was remarkably thin, soft, and loose in its texture. The walls of the right ventricle were especially

simple dilatation of the heart taxes the feeding powers of these vessels, this comparative failure of nutrition as to quantity being intensified by a failure as to quality from a spanæmic condition of the blood which, from various causes, is always more or less present. And so the heart gradually and imperceptibly loses that excess of energy with which it is provided,¹ till it comes to pass that when called upon for some trifling extra exertion, as in going up a stair or gentle acclivity, or as may happen—by night oftener, seldomer by day—by a sudden rise of intra-arterial blood-pressure from reflex causes, the response is made so imperfectly that the function of the augmentor nerve is sensibly impeded, and the increased katabolic action at once followed by sudden exhaustion revealing itself by an agonizing pain over the heart, which shoots, as already said, along those sensitive spinal nerves with which the sympathetic or katabolic nerve is embryologically connected. Occasionally there is breathlessness but no pain; the attack gets the name of cardiac asthma,² but it is brought on in the same way, and the case presents precisely similar phenomena to an ordinary attack of angina, only there is breathlessness and no pain. Now and again we have breathlessness and pain alternating, and in one old lady the illness commenced with an attack of pain in the

thin, in some parts not much thicker than the aorta, and very loose and flabby in their texture. Its cavity was large. The walls of the left ventricle, too, were much thinner and softer than natural, and the muscular fibres of the heart generally were pale and brown. There was but one coronary artery, and, considering the size of the heart, it appeared to be of small dimensions.”—Latham, *On the Diseases of the Heart*, London, 1846, vol. ii. p. 377.

¹ Foster's *Physiology*, London, 1868, part i. p. 146. “When a muscle still within the body is deprived by any means of its proper blood-supply the same gradual loss of irritability and final appearance of rigor mortis are observed as in muscles removed from the body.” Rosenbach has shown that the reserve energy of the heart is so great, that when the aortic valves of a healthy dog are destroyed suddenly there is no intermediate period of cardiac disturbance, however short, but the heart at once adapts itself to its altered condition, without exhibiting even a trace of a fall in the blood-pressure, which must have been observed had there been even a trace of falter on the part of the heart.—*Archiv f. experimentelle Pathologie und Pharmacologie*, Leipzig, 1878, S. 1. And Von Bezold has shown that long continuance of imperfect nutrition exhausts this cardiac energy.—*Untersuchungen aus dem Physiologischen Laboratorium in Würzburg*, Leipzig, 1867, Erster Theil, S. 279, etc.

² Stokes says,—“Well-marked instances of the affection, as described by Latham, are rarely met with, and the same may be said of the purely nervous cases noticed by Lænnec. I have never seen either of these forms. The disease which in this country (Ireland ?) most often gets the name of angina pectoris might be more properly designated cardiac asthma.—*Diseases of the Heart and Aorta*, Dublin, 1854, p. 488. This may serve to show that others have observed the relation between these two affections. The form described by Latham has been the one most frequently seen by myself, the well-marked asthmatic form has been comparatively rarely observed ; it is a perfectly distinct angina, too remarkable to be mistaken or overlooked. *Vide* also Gairdner in *Reynold's System of Medicine*, vol. iv. p. 565. Also Eulenberg, *Ziemssen's Cyclopædia*, vol. xiv. p. 48.

scrobiculus cordis simulating the passage of a gallstone;¹ her subsequent attacks were of intense breathlessness without pain, and accompanied by a feeble, wobbling heart-beat, and a hard, wiry pulse of high tension. When the pulse relaxed and became soft the attack passed away. After a severe attack one evening, which lasted over an hour, she fell asleep, woke in the early morning with a slight attack of Cheyne-Stokes respiration, and passed quietly away. Pain, though so usual a concomitant of an attack that angina cannot even be thought of without bringing up with it the idea of intense agony, yet forms no essential part of the disease, and it is no misnomer to talk of *angina sine dolore*.² Many of the victims of fatal angina pass away unobserved during the night; but not a few have had Ishmael's privilege of dying before their brethren, sometimes suddenly and without warning, at others preceded by a longer or shorter period of pain or of conscious sinking.³ So far as my experience goes, by far the greater number of fatal seizures have been apparently painless. I suppose Jenner was the first to point out the probable connexion between ischæmia and angina; he does not explicitly state this connexion, but he certainly implies it in saying,—“The importance of the coronary arteries, and how much the heart must suffer from their not being able to fulfil their function, I need not enlarge upon.”⁴ That ischæmia may give rise to pain is sufficiently attested by the pains that follow compression of an artery for the cure of aneurism, those which precede the appearance of gangrenous patches in senile gangrene, and those which precede, accompany, and follow attacks of local asphyxia (Raynaud's disease). There is every reason to suppose that the arterial spasm which is so evidently the cause of local asphyxia, and which forms so prominent a symptom in *angina vaso-motoria*, occasionally invades the heart either as part of the general condition, or it may even be as a distinctly local affection, and this is a possible cause of many anginal attacks where no other seems obvious. For myself I can, however, say that I have never seen a case of true cardiac angina

¹ “It occasionally happens that the very intense and sickening pain of biliary calculus presents a degree of resemblance to angina in its accessories; and the author has even observed cases in which the diagnosis remained doubtful until the yellow tinge of the conjunctiva, appearing after an interval of hours, relieved the apprehensions of the physician.”—Gairdner in *Reynold's System of Medicine*, vol. iv. p. 548, footnote.

² Gairdner, *op. cit.*, p. 566, was the first to use this term, which accurately describes many cases, and is also etymologically correct.

³ In one case the conscious sinking from ingravescent asystole occupied quite half an hour, *vide* Balfour, *op. cit.*, p. 305.

⁴ Letter to Heberden in 1778, *vide* Baron's *Life of Jenner*, vol. i. p. 40. Parry, *Inquiry into the Symptoms and Causes of the Syncope Anginosa, commonly called Angina Pectoris*, also accepted ossification of the coronaries as the most probable cause of angina. As Kreysig has said, “The word ischæmia was not then invented, but the thing itself was well known.”—*Krankheiten des Herzens*, Berlin, 1816, Bd. ii., S. 544. Huchard (*op. cit.*, p. 547), goes fully into the history of the development of the ischæmic theory of angina.

in which I have been unable to detect some of the physical signs of dilatation of the heart, and it may be accepted as a fact, to which there are few exceptions, that the less there seems to be the matter with the heart the more grave is the prognosis, if the anginous attacks are at all serious.

The vigour of a muscle may vary from nothing to a maximum, and depends upon the perfection of its metabolism. An ordinary skeletal muscle, however, only possesses irritability towards stimuli, but the heart has the power of originating spontaneous rhythmic movements, and also stores a reserve of energy so great in some animals that these spontaneous movements go on for hours after the heart has been separated from the body. It is evident, therefore, that the metabolism of the heart is of a very much higher order than that of the skeletal muscles, and is all the more likely to be injuriously affected by any changes in the quantity or quality of the blood which furnishes its basis.¹ The large reserve of energy with which the heart starts on its extra-uterine life, and which is always maintained during healthy life, enables it at any age long to resist these hurtful influences; but in time they tell, and the heart-beat becomes injuriously affected in many ways. One of the ways in which the heart-beat is injuriously affected is by some hindrance to the katabolism upon which the beat depends, causing interference with the function of the katabolic nerve, resulting in angina.

Considerable enlargement of the heart may thus be perfectly consistent with freedom from angina, if the arteries are pervious and the blood good both in quality and quantity; yet such a heart is apt to be more or less unstable in its metabolism, and comparatively slight causes and trifling changes in the calibre of the arteries, or slight derangements of the stomach or liver, suffice to bring on an attack of angina. There is little cause for wonder, then, that we find so many senile hearts subject to angina; the wonder, perhaps, should be rather that there are comparatively so few even of those having decided signs and symptoms of cardiac degeneration who are affected with this complaint. Still restricting myself to the 580 cases of senile heart seen and noted during the last ten years, I find that 98, or rather over one-sixth, made angina a prominent complaint. Of these, 17, or nearly one-sixth, were females—a considerably larger number than the 8 females out of 88 cases collected by Sir John Forbes, but still sufficiently disproportionate to make it probable that he is right in saying that this affection is more common in men than in women.² Of the 98 cases of angina 15 are certainly known to have died, and 17 are known

¹ Foster, *op. cit.*, p. 344.

² *Cyclopædia of Practical Medicine*, vol. i. p. 83. "The severer cases, at least, are met with much more frequently in the male sex;" also p. 84. Trousseau, *Clinical Lectures*, New Syd. Soc. ed., vol. i. p. 603, says,—"I do not think that it has been proved that males are more subject than females to this singular affection."

to have got entirely free of their attacks; of these 17, all are still alive and in apparently excellent health, except 3, who died after a longer or shorter period of complete freedom from pain. One of these had four years and a half of complete relief from pain, during which he progressed from 69 to 73 years of age, and was able to carry on his business, attending markets in all parts of the country. At last, after attending market in the county town in which he lived, and transacting business in apparently perfect health, he returned home, sat down, and without a complaint quietly departed. This gentleman when first seen had suffered from angina for eight weeks; the attacks came on whenever he attempted to go up a hill, and the pain extended into both arms, but chiefly into the right one. For years he had been breathless; his arteries were all atheromatous, hard, and tortuous; his heart was dilated, with a feeble impulse, and had a loud systolic murmur in all the areas. Under treatment the pain entirely left in a few months, the heart's impulse became stronger, the murmurs less distinct, and he was as able as ever to go up hills or stairs. About seven months before his death he had a severe fall, and was never afterwards so well. On the day of his death he had been about his business all day, apparently as well as ever; he went out again in the evening, returned about half-past seven, sat down, and quietly died. After death his face was pale, with a most placid expression, and his pupils both natural. There was no post-mortem examination.

A second case was that of an old gentleman, between 70 and 80, who was two years under treatment before he got rid of his pain; the remedies employed gave always relief, but the pain continued to recur upon exertion, and sometimes in bed, if his stomach was flatulent, for quite two years; after this he had no more attacks of pain. About two years after this—four years from being first seen—he had what was described as a bad faint; two days after that, another slighter attack of a similar character, but no pain; and about a week subsequently, he died quietly and suddenly one forenoon sitting in his chair. When first seen he had a feeble impulse, and a loud systolic murmur in all the areas; when last seen, just a week before his death, his apex beat was firm, the systolic murmur loud, but the heart's action was intermittent and irregular. From the first his arteries were very hard.

The third case was a fresh-looking man of 61, who had firm arteries with high blood tension, a large, dilated, and somewhat hypertrophied heart, with considerable palpitation and irregularity. He had severe anginous pain across his chest upon exertion, extending down the right arm. The urine was of low specific gravity—renal inadequacy—and there was occasionally a trace of albumen. He had also long suffered from an irritable bladder and enlarged prostate gland. The angina was speedily relieved by treatment; but about four months subsequently he had an attack of pneumonia of no great severity, and during convalescence he died somewhat suddenly from uræmic sinking.

Of the 12 remaining fatal cases, in all of whom treatment only gave temporary relief, two were little over middle life; both were busy men; in one the apex beat below the left nipple, the first sound was almost absent, quite faint and blunt, the aortic second was accentuated, there was no murmur anywhere detectable the fits of angina were very severe and easily brought on. I saw him in one attack, and formed a most serious prognosis from the severity of the angina, the comparative youth of the patient, and the little that was to be found the matter with the heart. He dropped dead in his own hall one morning about a month subsequently. The other patient had a slight systolic mitral murmur, the apex beat just inside the left nipple, aortic second accentuated. The fits of angina were said to be severe, but I did not have an opportunity of seeing one. I gave an unfavourable prognosis for reasons similar to those given in the last case. This patient was found dead in his office about three months subsequently. Of the ten remaining cases, three had serious illness connected with the heart for some weeks before death. One of these was never well after his first attack of angina; he had a large, dilated heart, and died within two years. The other two were both country lawyers, who carried on their arduous business, one of them for ten and the other for seven years subsequent to their first attack of angina;¹ both died after short illnesses following over-exertion in the course of business. One clergyman, after suffering for about seven years from a dilated heart with angina on exertion, hurried to catch a train at a country station, and died resting in a chair in the station. Another clergyman had been out for a drive one bleak November day; on coming home he sat down by the fire complaining of cold, and slipped from his seat dead. He was 65 years of age, and had a large, dilated heart, with a rather shrill systolic murmur in all the areas. He died within a month of being seen, having been much relieved by treatment. A third clergyman (each of these was of a different persuasion) wrote me as follows a few weeks before his sudden death,—“I don't know whether you will remember my consulting you about a year ago, ... as long as I keep still I have no discomfort, but very frequently, though not always, if I walk 50 or 60 yards I am seized with the most painful spasms, not in the heart, but in the pit of the stomach. If I stand up the pain comes on, even putting off or on my clothes excites it. Yesterday I went to my garden, a distance of less than 100 yards; I had severe pain, and on coming home our local medical man, who happened to be in the house, found my pulse to be intermittent; this must have come on recently, as he never observed it before.

¹ As I was writing this, the son of one of these lawyers, a man of 38 years of age, called complaining of anginous pains on exertion, of short duration and not severe. His heart is weak, its sounds parchmenty in character, the blood spasmic from imperfect recovery from an attack of drain poisoning a year ago. He recognised the pain as similar to what his father had suffered from.

I am 71 years of age, and with the exception of this pain I am in perfect health, and feel as strong and well as I was twenty years ago. As I cannot walk I ride or drive, and I can do both in moderation provided I enter my carriage or mount my horse slowly, but any sudden or quick movement brings on discomfort. Sometimes I am for a week quite well, and then without any cause which I can trace I am suddenly plunged into the most extreme discomfort. A brother of mine suffered for some time from exactly the same symptoms; he was told he was suffering from long-standing heart complaint. For the last three years all his symptoms have disappeared, and he is now quite well." This old clergyman had hard, atheromatous arteries, a large, dilated heart with a systolic murmur in all the areas, and the aortic second so feeble as to be quite inaudible. There was no diastolic murmur to be heard. He died quite suddenly a few weeks after writing the foregoing letter; no treatment gave him any relief. Of the remaining four patients, one was a case of free aortic regurgitation with a large heart, the other three were cases of dilated heart, two of them with a blunt first sound, an accentuated aortic second, and no murmur; the fourth had a large, dilated heart, an accentuated aortic second, and a systolic murmur in all the areas. This last case lived only about four months after being first seen; treatment gave him great relief; he was 58 years of age. These all died suddenly, but I have no particulars as to the manner of their death, except as to the last, who one morning after breakfast attempted to raise himself up in bed, gave a few gasps, and died.

I have had a good many more deaths among anginous patients, but they do not belong to the 98 cases referred to, so I exclude them from present consideration. It is remarkable how comparatively few anginous patients die during a fit of pain; some do die during the attack, but these are the exceptions that prove the rule. Most anginous patients die quietly after some trifling exertion, as is often the case in old people who have bad hearts, and who may therefore be said to die of *angina sine dolore*; some die during the night without any previous warning of anything being amiss, and in such cases the presumption is that the final strain has been thrown on the heart by some reflex constriction of the arterioles. Proof of this is often wanting, but the sickness which occasionally precedes death¹ may be accepted as evidence of a reflex action which could not but be injurious. These patients do not faint, they die; in a moment without warning the countenance changes and the patient is dead, sometimes after one or two slight gasping inspirations, often without any. It is as if the action of the katabolic nerve, which probably for years has been working under difficulties, were suddenly nugatory, and the heart refused to contract again, not from failure of force on the part of

¹ As happened in the case of the late Rev. Dr Chalmers, *vide Ed. Monthly Journal*, March 1851, p. 205.

the nerve, but from failure on the part of the heart itself from sudden complete exhaustion of a cardiac energy which had long been failing. In one well-known case it is stated that at the moment of death "the breathing was very laborious, his chest heaved, and there was a severe struggle over the upper part of the body."¹ I have never seen anything similar in death from angina, the nearest approach to it has been but one or two gasping inspirations. But in sudden death in aortic regurgitation, in which the heart fails much in the same way as in angina, death happening from failure to contract,—asystole,—I have seen every muscle in the body flaccid and at rest except those to which Sir Charles Bell's respiratory system of nerves are distributed; these were thrown into the most violent and exaggerated action, the nostrils, but especially the thorax, being opened and shut with extreme violence, as if the nervous centres were making the most strenuous efforts to force on the circulation and relieve the heart. So remarkable a mode of death does not seem confirmatory of von Bezold's idea that ischæmia of the cardiac walls does not induce stoppage of the heart in diastole until it has first produced tetanus of the vagus centre.² In aortic regurgitation the cardiac walls are, I am aware, not ischæmic; from defective valves they get overwhelmed by a mass and weight of blood they are unable to force onwards; an anginous heart is ischæmic, and is fatally overwhelmed by a much more trifling call for exertion; moreover, as a rule, sudden death in aortic regurgitation occurs very much as in angina *sine dolore*, a few gasping inspirations being its sole precursors, even if these do occur, which I do not know to be always the case. The only instance I know of in which death from angina was said to have been preceded by a faint was that of the old gentleman mentioned at p. 896, who was said to have fainted one week, and after continual slight recurrences to have died in another faint the week following. But from what I know of the circumstances preceding and attending his death, I have no hesitation in saying that though the feeling may have resembled that of syncope, the cause was different. It was an attack of cardiac and not cerebral failure. His death was really a case of prolonged ingravescent asystole. Deaths from angina are by no means always instantaneous. I have already recorded one in which an obvious and recognisable ingravescent asystole lasted quite half an hour.³ In the end of last year I saw an old gentleman for severe angina; a few weeks afterwards he assisted home a friend who had met with a slight accident; he felt very unwell after this, but struggled home himself, and died within

¹ Latham, *op. cit.*, p. 376.

² Von Bezold, *Untersuchungen aus dem Physiologischen Laboratorium in Würzburg*, Leipzig, 1867. Erster Theil, Fünfte Abhandlung, S. 286. "Ischämie der wandungen des Herzens, verbunden mit Blutleere des linken Ventrikels, erzeugt ohne Tetanus des Vaguscentrums keinen diastolischen Stillstand."

³ Balfour, *op. cit.*, second ed., p. 305.

twelve hours, never having recovered his exhaustion. In this case the ingravescent asystole lasted over twelve hours. In the case of the old gentleman referred to above it lasted quite a week, because by the use of stimulants and the avoidance of exertion life was spun out to its last gasp.

The time occupied in dying largely depends upon the mode of death, the care taken of the patient, and the pre-existing nutritional vigour of the heart; while in death from angina it depends upon the nutritional vigour of the cerebral centres whether, when the heart has almost ceased to act, the natural reflexes are able to exert themselves energetically in a vain effort to force on the circulation, or are only able to enter the feeble protest of one or two gasping inspirations.

Of the 17 patients who have got entirely free of their attacks of pain, some have been quite free for nearly ten years, others for varying periods down to three years; most of them I see occasionally, the rest I hear of, and I know them to be well, with a good, firm heart-beat and no pain on exertion, even breathlessness is not much complained of, though where murmurs did exist they still persist. The great difference being, that whereas formerly the heart walls were feeble and ill fed, they are now strong and well fed. To keep them at this mark they require constant care, watching, and treatment, which in the face of advancing age cannot ever be long pretermitted without risk of a serious relapse. Sometimes even in these cases the heart breaks down without any return of the angina, not apparently from want of feeding, but from overwork or from emotional causes, which of themselves do not produce angina, though if persistent they might do so *per viam ischæmiæ*, however brought about. The following case is very instructive from more than one point of view. On the 21st of January 1880 I was asked to see a patient suffering from angina. I found the patient, a well-preserved man of 68, suffering so much that the slightest exertion, such as walking ten yards or even putting on or taking off his clothes, sufficed to bring on an attack of pain, distressing enough, but not of great severity. His heart was slightly enlarged, the apex beat nearly below the left nipple, the first sound over the apex blunt, the second accentuated, the arteries hard and atheromatous. I prescribed for him, and recommended him to get out of business, and if possible into a warmer climate. As he had suffered much from physicians previously, I gave him, at his own request, the following letter to show to any medical man who might require to be called in, so that he might have a distinct idea of the view taken as to the nature of the ailment, and might be able to supplement, alter, or otherwise carry out the treatment intelligently.

January 21st, 1880.

Dear Sir,—I shall group what I have to say under three heads:—

1. The nature of your disease and its cause;

2. The treatment, medical and general; and,
3. The results to be expected from that treatment.

1. The cause of your disease is primarily a loss of elasticity of the arteries; by this a greater strain is thrown upon the heart than usual. The result of this extra strain is, in your case, a slight enlargement of the heart—dilatation with compensatory hypertrophy. In your case the hypertrophy is somewhat insufficient, and the result is, that when your heart is called upon for any unusual exertion, either from emotion or bodily exercise, it becomes pained, and the pain shoots along the course of various nerves connected with those of the heart, and thus gets referred to various other parts, as the arms or stomach, after a fashion with which medical men are only too well acquainted. In its essence it is an *angina pectoris*, not associated with a lesion of any valve, though I quite believe that the signs of mitral regurgitation may sometimes be present.

"2. The medical part of the treatment resolves itself into means to relieve the pain when it occurs; and, secondly, the use of remedies to improve the condition of the heart, and thus render the attacks less frequent. These prescriptions will be found on a separate paper, and on it also the medical man, whom you must always send for at once on any seizure, will also find noted down suggestions as to certain supplementary measures which may be employed if the attack does not quickly yield to the means first used. The general treatment must consist in a persistent avoidance of all mental or bodily excitement. You should, therefore, go about on foot as little as possible, at present drive only. Shun all public meetings and worry of every kind. To gain this complete rest of body and mind, as well as to escape our often severe cold, which for you is not devoid of danger, I would strongly recommend you to start at once for the south of England at least, and if at all able for the south of France. I have no doubt that you will benefit greatly by the change, and I think you will manage it comfortably taking the journey by easy stages.

"3. The amount of improvement you are to expect from treatment depends upon conditions as yet unknown to me, but which will reveal themselves by-and-by. What I aim at is to put on the drag, so as to stop you from going downhill so rapidly as you have been doing. If your heart muscle is as sound as I believe it to be, the treatment may result in completely stopping the pain; more probably, from the long time it has already lasted, the pain will only come seldomer and be less severe. The causes of your ailment are incurable, so we can only mitigate the results. Sometimes the relief obtained is so great as to simulate a perfect cure, and this is what we aim at.—I am, etc."

The following December I wrote the patient's doctor to inquire as to his condition, and received the following reply:—"I saw Mr B. about two months ago, and found him in excellent health. I believe

he is at business every day, and able for a good day's work. After you saw him with me in spring he went to Bournemouth, with which he was delighted. He stayed there three months, and came home in June immensely improved in every way. No return of the angina pectoris, nor any tendency thereto, since you last saw him. July and August he spent at Crieff, and thought this also helped him greatly. When I examined him in June there was still evidence of the dilatation of the heart, but I could make out no murmur. His breathing power was also much improved, he could walk much farther without ever requiring to stop as formerly." Early in the following March Mr B. paid me another visit; he assured me that so far as he could judge he was as well as ever he was, and that he had only called to obtain my sanction to his marriage, as he thought an agreeable companion would greatly conduce to his comfort and happiness.

I found the heart's impulse much firmer, otherwise the heart was much as formerly, and my sanction to his marriage was given along with some sage advice. After this Mr B. continued apparently in the enjoyment of perfect health for about two years, then his partner in business died rather suddenly, and as this partner had for some years taken the larger share in conducting their very extensive business, the whole of this, with all the correspondence, was suddenly thrown upon Mr B. The result was a complete breakdown; the work and worry were too much for his heart, this organ rapidly dilated, it developed a loud systolic murmur in all the areas, its action became embarrassed, very considerable general dropsy set in, and the case seemed most serious. Fortunately the recuperative power of the heart was not lost, it responded well to treatment, and a few weeks of perfect rest restored Mr B. again apparently to his former state. At all events his health seemed quite re-established, he suffered no more from his heart, and he was able to go about and enjoy himself, though debarred from any longer taking an active share in business. Two years more passed away, and again I saw Mr B., this time for a slight attack of paralysis affecting the left arm, apparently due to some small embolism or cortical thrombosis. This came on him with giddiness as he was leaving church one Sunday afternoon, but it speedily passed away, and left him not a whit the worse. Six months afterwards he died from pneumonia. Being from home I did not see him on this occasion, but I understand that his heart trouble undoubtedly hastened his end. It is the rarest thing in the world—if it ever happens—for a man over 60 with a dilated heart to recover from a pneumonia. Even if he recovers from the primary attack, the exhaustion following it initiates the beginning of the end, which is no long time of following.

Sequelæ of the Senile Heart.—Latham has finely said in regard to diseases of the heart—"What is their clinical history but those prior and accompanying conditions in the life and health of the

patient, which are found variously leading to and variously promoting and causing them; as well as all those subsequent conditions in the life and health of the patient variously springing *from* them, and variously promoted *by* them? And what is their treatment conversant with, but the means of influencing those same conditions, and of influencing those same conditions for good?"¹ These statements—so true of all cardiac diseases—find their pre-eminent application in senile affections of the heart. For the clinical history of these affections is not the mere story of the past few weeks, but is always the life-history of the patient from the cradle, and often involves that of his forefathers also. While in their turn the affections of the senile heart variously influence all the future life of the patient until he drops into his grave,—a grave which has often been prematurely prepared for him by some careless ancestor, but which he also only too often digs for himself by his self-indulgent habits.

All diseases are but abnormal phases of life; ordinary diseases are the result of excessive or abnormal stimuli in inducing violent and perturbative compensatory changes which gradually eventuate in health, and which only terminate fatally or in chronic organic disease when the constitution for some reason or other fails to carry out these changes to their appropriate and legitimate termination. The senile affections of the heart are only, however, diseases in the sense of being associated with abnormal phases of life, and not in any other; they can never eventuate in perfect health, and they do not originate in any incomplete perturbative actions. They are the natural result of prematurity, or excess, in those changes affecting the arterial tissue which wait upon advancing years; and in their turn they variously modify every subsequent condition in life. These tissue changes are degenerative and progressive, they commence long previous to the time when either symptoms or organic changes force themselves upon the attention of either physician or patient. During all that time they have been slowly but persistently exerting their influence not alone on any one organ of the body, but on every tissue of which the body is composed, and have been equally slowly and persistently modifying every one of these various functions, the sum of which constitutes our life. We shall presently find that a due recognition of this gradual and progressive modification of every function will not only help us clearly to understand the etiology of many obscure ailments, but will also enable us to treat them with greater confidence and success.

When the heart is considerably dilated and has been so for some time, the general phenomena that claim our attention are simply the ordinary sequelæ of a dilated heart, with which we are all so familiar, complicated and rendered more intractable by the senile character of their cause, as we all know only too well.

¹ Latham, *op. cit.*, vol. ii. p. 360.

But it is before things come to this pass that those sequelæ are observed which possess for us the greatest interest.

It is of importance to remember that the senile changes in the circulatory system comprise not merely loss of arterial elasticity and diminution of the capillary area by obsolescence (withering) of many of these vessels, but also another alteration of even more significance, too often forgotten and overlooked, but yet a factor in all the future life which can never be neglected. I refer to that remarkable change which takes place about middle life in the relative size of the aorta and the pulmonary artery. Up to this period the pulmonary artery has been the larger of the two, and the blood has thus been kept at a high pressure within the lungs, notwithstanding a free and unembarrassed egress into the left heart, and so onwards. But blood circulating through the lungs at a high pressure and a normal rate gets rid of its carbonic acid more rapidly and, therefore, more perfectly than blood circulating at the same rate, but at a lower pressure. Hence up to middle life every tissue of the body has been continuously flushed with a highly oxygenated blood, full of potentiality, and a well-nourished and healthy organism has thus been filled full of life and vigour, and placed at its very best in regard to its capacity for bodily and mental exertion. After middle life all this slowly changes, the aorta gradually becomes larger than the pulmonary artery, the blood circulates through the lungs at a much lower pressure than formerly, consequently the carbonic acid is given off more slowly, and throughout all the future life there is a gradually increasing "venosity"¹ of the blood, as the older writers termed it, which has an important influence upon all the functions of the body. As age advances there is also a tendency of the blood in the veins gradually to increase in amount at the expense of that in the arteries, and the slightest disposition to cardiac debility or dilatation is an obstacle to the onward flow, and aggravates this tendency. The result of this is remora of the blood in the venous radicles, and accumulation of a serous plasma in the extra-vascular spaces. The blood plasma in health diffuses the elastic pressure of the tissues and binds it to that of the arterial wall; but the elasticity of the tissues lessens with age and is never restored, so that even the normal condition of the vascular environment is at this period a source of peripheral resistance, and of increase in the intra-arterial blood-pressure.² And

¹ *Vide Ed. Med. Journ.*, vol. xxxiii. p. 681, and vol. xxxv. p. 205; also Beneke, *Die Altersdisposition*, Marburg, 1879, p. 25,—"*Die arteria pulmonalis bleibt während des ganzen Lebensabschnittes in ihrer weite hinter derjenigen der Aorta ascendens zurück,—eine natürliche Folge der wesentlich in der arterien des grossen Kreislaufes erfolgenden Erweiterung, aber auch eine Folge, welche für die Verhältnisse des Blutdrucks in den Lungen nicht ohne Bedeutung sein kann.*"

² *Vide Ed. Med. Journ.*, vol. xxxv. p. 213; and A. J. Hamilton's *Text-book of Pathology*, London, 1889, vol. i. p. 630, and p. 694; also Donder's *Physiologie des Menschen*, Leipzig, 1856, vol. i. S. 169.

we can easily understand that remora of the blood in the venous radicles, and accumulation of the plasma in the extra-vascular spaces, may become even a more serious source of increase in the intra-arterial blood-pressure than the loss of arterial elasticity itself.

The structural changes referred to are, of course, inevitable, but they vary much in regard to earliness or lateness of development. This is specially the case in regard to arterial elasticity, which is often utterly gone very early in life, and at other times is greatly preserved even at a very advanced age. But there are other factors of considerable moment in our life's history over which we can exercise a very considerable power of modification, and in this way materially postpone or avert very many of those sequelæ of the senile heart which so often embitter our later years. The most important of these factors are diet and exercise; but as these must come to be very carefully considered when I speak of treatment, I shall say no more about them at present, save only this, that though no doubt there are many wilful sinners in regard to both, there are an infinitely greater number who err through ignorance. For Physiology has not yet received the *imprimatur* of the Board Schools.

(To be continued.)

II.—RETROVERSION AND RETROFLEXION OF GRAVID UTERUS.

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IN the pathology of pregnancy uterine displacements play a very important part, and none more so than backward displacement.

The frequency of retro-displacement of the gravid uterus is a question upon which there is ample room for difference of opinion. Considering the frequency of retro-version and flexion among parous women, the relative frequency of gravid retroversion must be very considerably greater than is generally supposed. Of course something must be said as to the exact meaning of the term retroversion. If by the term is meant complete displacement of the organ in the pelvic cavity, so that the fundus is contained in the hollow of the sacrum, while the cervix is carried forward beneath the symphysis, then probably it is comparatively rare, and Depaul is right when he says, "For my part, during a practice of thirty years, during which time I have had an opportunity of observing almost everything unusual in obstetrics, I have only seen eight or ten cases of retroversion during pregnancy." But if in the term retroversion

is included backward displacement of the uterus of a minor degree, then my experience teaches me that it is by no means an infrequent occurrence. Since I had occasion, some years ago, to inquire into this matter, out of fifty cases in which early pregnancy was diagnosed, in ten there was distinct backward displacement. But if gravid retroversion be comparatively rare, at all events in its pronounced form, it is certain that gravid retroflexion is still rarer, and that complete incarceration of the advanced gravid uterus is one of the least common accidents during pregnancy.

A well-marked case having come under my observation in the Hospital, and having proved fatal, I have thus had an opportunity of observing some anatomical and clinical facts in connexion with it. I propose to narrate the case and draw attention to these points in detail.

The patient was brought to my ward in the Hospital with a letter from her medical attendant, stating that she had been under treatment for some time, under the belief that she was suffering from an ovarian tumour, and a surgeon had undertaken to perform the operation of ovariectomy; indeed, she was to have been operated on a week previously had not some circumstance intervened to prevent the operation; as it was, she had been tapped and some fluid drawn off. She was unable to stand or walk, and on being placed in bed the following facts were elicited. Her age was 43, she had borne nine children, youngest 14 months, and had several miscarriages. She had missed three menstrual periods, and she believed she was four months pregnant, though during all the period of menstrual suppression she had had every day or two a little discharge of blood. This point is an important one, adding in a very marked degree to the difficulty of the diagnosis, it being by no means uncommon in myxomatous degeneration of the chorion, to which, as will be seen, this case has a close resemblance. Her abdomen began to increase in size shortly before the third period, and rapidly grew to its present dimensions. She states she has passed her water irregularly, sometimes being troubled with incontinence and sometimes with a difficulty in passing it. She of course sought medical advice, and was from time to time informed that she had a parovarian tumour, and that in due course it would be removed.

On examination the abdomen was found distended by an even, smooth, tender tumour extending midway between the umbilicus and ensiform cartilage. Its surface was only moderately tender. It permitted the most careful manipulation. It was very tense, dull on percussion, with a clear note in the flanks, most marked on left. The tumour was ovoid and was median. On auscultation no foetal sounds could be heard, but over the entire superficies of the tumour, and notably most intense at the upper portion, a very distinct though subdued uterine souffle could be detected. This was tested by several present, and verified by all. No other auscultatory sounds were audible.

There was a thrill, but this was not very defined, being most marked in an oblique direction and at the upper portion of the tumour.

Per vaginam.—Owing to the projection of the posterior vaginal wall and elongation of the vagina, a digital examination was exceedingly difficult. Behind the posterior fornix vaginae was felt a large, irregular, doughy mass. Nothing of the nature of a cervix could be recognised. It was just possible to feel higher up behind the symphysis a thin, fibrous, soft rim, which was supposed to be the anterior lip of the cervix. Through the anterior vaginal wall there was a soft, boggy mass similar, though softer, than that lying behind.

A rectal examination elicited no further information, and of course, under the existing circumstances, a bimanual was impracticable.

Recognising the importance of the rule, "never to give an opinion about any doubtful pelvi-abdominal tumour without emptying the bladder," I introduced a catheter without any result. The catheter was then introduced up as far as it would go until the whole length of the instrument was introduced within the urethra, yet no fluid escaped. Believing the catheter to be blocked, I passed a fresh one, with similar result. This I was unable to explain. I therefore asked Dr Milne Murray and Dr Haultain, who happened to be in my ward at the time, to repeat the experiment, which they separately did, yet without any result, though the catheter in each case was passed up to the ring. There was a slight vaginal pulse. There was no ballottement. The temperature of the patient was 100° F., and pulse 120.

On making a more rigorous examination, and after removing my hand from the vagina, there was a discharge of clear fluid, which at the time it was difficult to say whether it was liquor amnii or urine. It was not marked; still it was sufficiently pronounced to be noteworthy.

Owing to the exhaustion of the patient and the tenderness of the parts, it was determined that she should be allowed to rest for some hours. This was accordingly done, and at six o'clock the same afternoon she was seen. When I reached my ward at that hour, I was informed that my nurse, finding a urinous odour about the patient, had instructed a probationer—who, I may mention, had never passed a catheter before—to draw off her water. This she did, and at once drew off 116 oz. of urine.

This information was sufficiently startling, as the catheter had already been passed by Dr Milne Murray and Dr Haultain, as well as by myself, without withdrawing any fluid whatever. Such was nevertheless the fact. The urine was of claret colour, ammoniacal, and under the microscope showed pus and blood.

On returning to the patient I found the tumour smaller and less tense, but maintaining its form very much as I have already

described. One point was carefully noted, viz., that the bruit was very much less distinct, in some parts entirely gone. The fluctuation remained as before, and the same remark applies to the relation of parts per vaginam.

The catheter was again introduced, and 20 oz. more of urine of a similar character was drawn off without great manifest change in the abdominal tumour.

The question of diagnosis now became pressing. First, it seemed that any possibility of the tumour being vesical was untenable, from the fact, even after removal of a large quantity of urine, that a tumour still remained. Was it hydramnios or myxoma of the chorion? Either of these hypotheses seemed to me at the time feasible. How otherwise account for the suppression of menses and the distension of the abdomen beyond the term corresponding with the menstrual suppression? for it must be borne in mind that the menstrual suppression was at most three months, and the tumour corresponded to a six months' pregnancy, with the fact that the bladder had been emptied. Further, there was the well-marked bruit all over the tumour, characteristic mainly of pregnancy; no doubt it was lessened on the second examination, but yet it is well known that this sign varies from time to time. To set against this was the opinion of her previous advisers, who had the opportunity of forming a conclusion under much more favourable circumstances, that the tumour was ovarian and ripe for operation. The bulging of the posterior fornix, the impossibility of detecting the cervix, and the corresponding suppression of menses and associated bladder trouble, with abdominal tumour, pointed to a gravid retroversion; against this was the introduction of the catheter without removing any water, and the non-disappearance of the tumour after the water had been drawn off, together with the well-marked souffle. The other hypothesis was a pelvic tumour complicated with pregnancy and hydramnios, or myxoma of chorion, and this, I am bound to say, to my mind seemed the most feasible.

The only other possible solution seemed to be a simple parovarian tumour with a retroverted gravid uterus.

The diagnosis was therefore put aside for the night, the consensus of opinion being that it was uterine, probably hydramnios.

During the night the patient became somewhat delirious, then she became comatose, and next morning at visit hour she was *in articulo mortis*. In the afternoon she died.

The autopsy was made the following day by Dr Bruce. On opening the abdomen the appearance shown in Plate I. was observed. On further dissection the tumour was found to be the bladder containing urine and blood-clots, and lying beneath it the retroflexed incarcerated gravid uterus. The parts were removed, frozen, and cut, and their appearance in the accompanying Plates A. and B. is well shown.

First of all, with regard to the question of diagnosis.

This difficulty of diagnosis is by no means infrequent in cases of gravid retroversion of long standing, for it is quite obvious that the bladder had been distended for at least a month. The characteristic symptom of gravid retroversion, viz., urinary trouble, had set in about the usual time, the end of the third month. At first her urine was drawn off, but then as the bladder got accustomed to the condition of repletion, and was constantly relieved in part by overflow, catheterization was not required. The bladder, struggling to overcome the obstruction to the flow of urine, and further compressed by the abdominal muscles, and thrown into spasmodic reflex contraction, gets partial relief by driving a little urine through the urethra. The condition illustrates excellently well the axiom, that "frequent micturition is a sign of retention of urine."

That the catheter should have been passed by three of us successively, each well accustomed to such work, as far in as it would go, and that without withdrawing any urine whatever, and yet that the catheter should have been successfully passed an hour later by an inexperienced probationer, is a clinical fact at once noteworthy and difficult of explanation. My case is not, however, unique in this respect. A similar experience occurred to Schatz.¹ He sought for an explanation in vain. The woman, a multipara of 35; amenorrhœa of over three months; tumour size of nine months' pregnancy; dribbling away of urine; had a catheter passed without urine being withdrawn, although the bladder, as was afterwards proved, was greatly distended with urine. This he attributes, for want of a better reason, to thickness of urine. The case which seems most nearly to tally with mine is that of Moldenhauer.² It even tallies as to the month and the year.

Multipara, æt. 33; seven children.

June 1.—Last menstruation.

Sept. 1.—Urinary trouble.

Sept. 8.—Complete retention.

Came under observation on 9th October, with swelling above umbilicus. By means of catheter 100 grammes of dark, offensive urine was drawn off, the height of the abdominal swelling coincidentally decreasing to below the level of the umbilicus.

Per Vaginam.—The whole pelvis was filled with a tumour, which reached almost to orifice of vagina; only behind symphysis was there room to pass finger. Abortion took place on 15th October, and the patient died on 17th October.

Bladder after death was found to be a big sac the size of a child's head. It ought to be noted in this case that reposition was accomplished, notwithstanding a full bladder, with patient in knee-elbow position. Again, in this case Moldenhauer attributes his inability to empty the bladder to the thickness of the urine and to the catheter getting stopped.

¹ *Archiv für Gynäkologie*, vol. i.

² *Ibid.*, vol. vi. p. 108.

A careful study of the preparation in my case will show how my inability to empty the bladder arose. The retroflexed body of uterus occupied the entire pelvis. It lay, however, obliquely, the fundus being directed backwards and to the left, spreading itself out under the promontory of the sacrum, while the thinned-out cervix lay in relation to right anterior wall of pelvis, with a segment of bladder into which the urethra opened, interposed. This is shown in the accompanying woodcut. The remaining or dilated portion of



Horizontal transverse section at level of pelvic brim to represent diagrammatically the position of the uterus and bladder. C. Cervix. U. Section through wall of uterus. R. Intestines. B. Bladder compressed between uterus and pelvic wall.

the bladder entirely occupied the middle line of the body, so that the whole bladder was rotated on itself, a comparatively small portion being pelvic, and firmly compressed against the right anterior wall of the pelvis, the remaining and larger portion being abdominal and mesial.

The pelvic portion of the bladder was completely shut off from the rest of the cavity. The sac was only potential, the two walls lying so closely apposed as to effectually prevent the entrance of any urine below the line of pressure. The urethra, therefore, and this portion of the bladder formed a continuous empty tube.

It is just worth while mentioning, though it really does not fall to be discussed in this paper, that the urethra was neither elongated nor pressed. This point I hope to bring out more fully again.

The part compressed included the whole trigone, except a small portion near the orifice of left ureter, which opened into dilated portion of bladder. The surface of the trigone was so twisted that it looked entirely to the right. The right ureter opened into compressed portion.

Thus we find an explanation of the frequent passing of the entire catheter without any fluid passing. The fact being that the catheter passed into this empty compressed part, and coming in contact with the hard, unyielding walls, coiled on itself, and there remained.

But, then, why was the nurse able to draw it off with the same catheter? Obviously for this reason. In our endeavours to explore the pelvis and to make out the exact lie of parts, the uterus had been pressed away from the pelvic wall, and the urine from the over-distended segment above had forced and maintained a passage to the empty sac below. This was further evidenced by the fact that, on removal of the examining hand after withdrawal of the catheter some fluid escaped, but at the time we could not recognise its true nature, whether urine or liquor amnii. The disarrangement of parts caused by the pelvic examination had been the cause of this phenomenon. If this be so, why then did the bladder remain sufficiently large to form an abdominal tumour after emptying. The answer is—1st, the bladder walls, from long over-distension, had lost their tone, and remained, though distended, lax and loose; 2nd, the bladder contained enormous clots; 3rd, after the urine had been drawn off these clots blocked up the orifice of urethra; and, 4th, when the catheter was introduced into a partially dilated bladder, it simply passed up among clots, and its end was choked up.

This condition is quite separate and distinct from the canalization of lower end of bladder in labour, where the catheter, at least the short catheter, is passed without avail. It is a fact which readily admits of clinical demonstration in labour, that the direction and length of urethra, the small quantity of urine drawn off from a well-marked supra-pubic vesical tumour, and the length of catheter required, show canalization of the bladder and its displacement from the pelvis to the abdomen.

In my case the urethra is not elongated; a well-defined portion remained in the pelvis empty, with its walls in apposition, while the rest of the bladder was distended and abdominal. In the present communication I am not concerned to show how this diverticulum or sacculum of the bladder came about. I will only refer at present to four factors in its production. 1st, The close attachment of the bladder to the thinned-out cervix; 2nd, the flattening and broadening of the bladder in parous women; 3rd, rotation of the uterus in this case, so as, 4th, to take advantage of the asymmetry of the female bladder.

Comparing this with another case of over-distension with cystitis, which resulted in the entire exfoliation of the mucous membrane of the bladder and its expulsion per urethram, I suggested that the catheter might have got embedded in the detached mucous membrane; but as the drawing shows no such condition was present, therefore I hold that in this case the facts seen post-mortem entirely explain the clinical phenomenon. The preparation has already been described by Dr Haultain.¹

Now with regard to the presence of the well-marked soufflé. In the first place, it must be remarked that it was not the impulse

¹ *Laboratory Reports of Royal College of Physicians*, vol. ii.

communicated from the iliac vessels or the aorta, as is so often found in abdominal tumours, but a distinct continuous blowing sound clinically identical with the uterine souffle, and heard all over the bladder tumour, and specially well pronounced at its upper part. This, I think, is clinically disappointing, for though this sound is not characteristic of pregnancy only, yet it is not heard, as a rule, in fluid tumours of the abdomen, and is seldom if ever heard over a distended bladder. The case I have just recorded goes some way to lessen the value of this sign. The presence of this sign appeared to me to indicate that the tumour under observation was uterine. Obviously, the explanation was to be found in the extreme distensions of the bladder, and its being in great part filled with blood-clot, and from the fact that the uterus lay, as the Plate shows, so closely connected with the bladder. I have twice seen very tense ovarian tumours associated with pregnancy where there was no bruit to be heard whatever. In these cases the relation of uterus and ovarian tumour was lateral, and there was no organic connexion between them. It was otherwise in the present case, for not only was the bladder organically and very closely attached to the cervix, but it was in close contact with it, both laterally and superiorly.

The next and last point to which I wish at present to draw attention is the fact that, though a careful examination was made per vaginam, yet the cervix uteri was not detected. Now this, as the preparation shows, was not due, as is so often the case in gravid retro-flexion and version, to the cervix being tilted up entirely beyond reach; for it will be observed that the cervix is within reach of the examining finger. The fact is, that in the altered condition of the cervix is to be found the true explanation. If the hitherto published illustrations of gravid retro-version and flexion are studied, it will be seen that the cervix is a firm, solid, unyielding body tilted up against the urethra or neck of bladder, either of which it closes. In most of the diagrams, Plate II., retroversions are reproduced in which the cervix is straight. In a few, retroflexion is depicted, and in them the cervix is more or less bent, but in both the neck of the uterus is firm and solid, preserving its normal thickness and dimensions. In the case before us the condition of matters is entirely different. The cervix is reduced to two very much thinned out, soft, non-resistant lips. The lips are reduced to almost wafer-like thinness, the posterior in particular being so elongated that it has practically disappeared. So thin and soft were the lips that it was impossible to detect the cervix in the altered vagina. This cervical change differs, so far as I know, from any hitherto described, both in its nature and mechanism. These points I propose to reserve for another occasion. Meantime I point them out as the reason why the cervix was not recognised. Further, if regard be had to the relations of the cervix and the urethra, the latter of which, as I have already pointed out, was not elongated,

it is probable—nay, more, it is almost a certainty—that the pressure of the cervix on the urethra had nothing to do with the retention, but that it was due entirely to a portion of the bladder being constricted in the pelvis. Whatever may have been the condition of the cervix when the retroversion began first to evidence itself, or how the usually described mechanism may have been at work then, I cannot say. It is quite certain that in this incarcerated retroflexion the cervix was by no means the main factor in the retention. When the constricted portion was filled, the urine passed readily enough along the urethra.

I have for the present confined myself to a record of the case, and drawn attention to the impossibility of drawing off the urine, and its explanation; the presence of the uterine souffle over the bladder; and, lastly, the, so far as I know, unique condition of cervix.

From the description of the Plates already given, it will be seen in a general way how the parts are situated. The points in the anatomy of the preparation which call for special attention seem to me to be as follow:—

Both Plates A. and B. distinctly show a marked thinning of the cervix, the posterior lip being almost entirely obliterated. If this be compared with Plate II., it will be seen that the conditions of the cervix are very different. The latter show the cervix firm, hard, consistent, offering a distinct point of pressure on the urethra in the one case, and on the bladder (Figs. 1 and 2) in the other; whereas, in my case, the cervix (Plate II.) instead of being the cause of pressure, is itself pressed on. Why, then, is the cervix thinner?

i. Thinning of the cervix is not a usual, nay, more, it is a hitherto undescribed condition in retroversion of the gravid uterus. All the already published cases, which are, so far as I know, diagrammatic, show no such condition; on the contrary, each of the four, and all the others with which I am acquainted, leave the cervix, so far at least as the thickness is concerned, unaffected.

ii. The condition shown here is the result of long over-distension with incarceration for over a month.

iii. The explanation of this thinning must be looked for, it seems to me, partly in the bladder, partly in the uterus.

a. With regard to the bladder—from its over-distension. The normal extent of its attachment to the uterus, known as the parametrical cellular tissue, which, in the normal condition, measures about an inch, is here increased to 4 inches. In this way the corresponding lip will share in a similar lengthening and thinning. The bladder-wall has no doubt shared in the same thinning, but the drawing entirely fails to show this. So did the recent specimen. The explanation of this apparent discrepancy is to be found in the fact, that although the wall itself is thinned, yet an appearance of thickening is given from an exudation and extravasation of serum and blood.

β. With regard to the uterus—there fall to be considered the following factors as causing thinning of the cervix :—

i. The dragging of the retroflexed uterus. Not only is the mere weight of the uterus to be considered, dragging as it did for some weeks on the fixed cervix, but the constant straining and tenesmus on the part of the patient very much added to the downward pressure of the fundus and the consequent thinning and stretching of the cervix.

ii. The pressure of the incarcerated uterus. The mere fact that the organ was jammed firmly down in the pelvis, and directly pressed on the cervix, was no doubt a factor which contributed freely to the peculiar thinning of the cervix just described.

iii. To some extent, at least, this thinning is to be explained much after the same manner as thinning takes place in the uterus in the first stage of labour—say in cases of flat pelvis, shoulder, or hydrocephalus. In these cases, by a mechanism well understood, the cervix gets thinned out, until in some cases actual rupture results. By a mechanism somewhat similar, the cervix in this case being fixed and the uterus contracting in the effort of abortion, the cervix became thinned and assumed the appearance which the drawing represents. Therefore uterine contractions with a fixed cervix may be regarded as one factor, at least, in the production of this cervical thinning.

There was distinct hydronephrosis of the right kidney. This hydronephrosis bears distinctly on the case. The right ureter opened into the compressed portion of the bladder; and as a result of the blocking of the ureter at its entrance into the bladder, the passage of urine was entirely suspended, and consequent dilatation of the pelvis of the kidney took place. There was a certain amount of hydronephrosis of the left kidney; but this was not marked, as the ureter opened into the larger and distended portion of the bladder. Though the distension of the bladder prevented even here the entrance of urine into that viscus, yet the condition was not one of absolute blocking; and in the state of the right kidney and the bladder the cause of death from uræmic poisoning must be sought.

DESCRIPTION OF PLATES.

PLATE I.

Appearance presented on opening abdominal cavity, showing the greatly distended bladder occupying the middle line.

PLATE A.

Vertical section through pelvic contents in a line from pubic symphysis to promontory of sacrum. Right half, showing—*a.* inner surface of retroflexed body and fundus of uterus, about a third of entire organ; *b.* small portion of placenta attached; *c.* cervix uteri, with thinning of anterior lip and

PLATE I.





A







B





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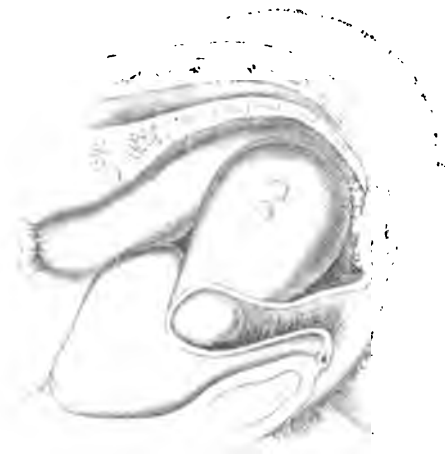
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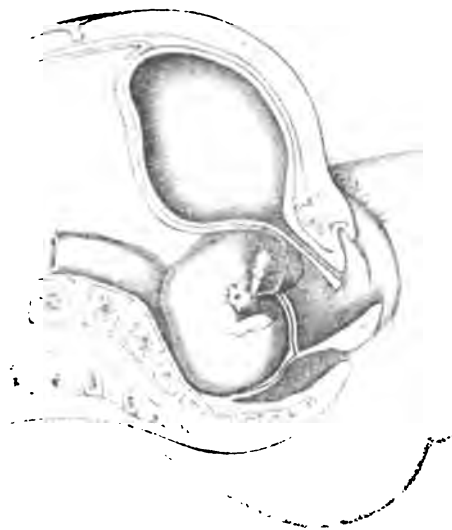
PLATE II.

1



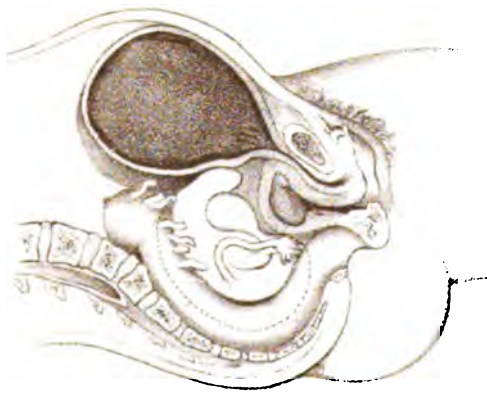
Boivin and Dugès.

2



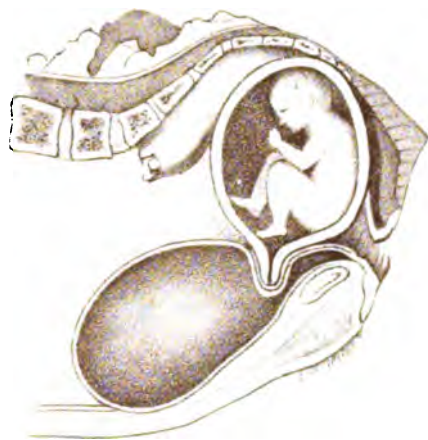
Schultze (diagrammatic).

3.



Schatz, *Arch. f. Gyn. I.*

4.



Charpentier (diagrammatic).



complete obliteration of posterior lip; D. vagina, about two-thirds; G. urethra with drainage-tube introduced, in nowise elongated or compressed. V. Dilated portion of bladder, fully a third of entire organ. VI. is situated over what corresponds to the centre of the compressed portion of bladder. The uterus hides this part from view, but its extent is indicated by a faint dotted line.

PLATE B.

Left half of vertical mesial section. A. Retroflexed body of uterus, about two-thirds of entire organ. *b.* Foetus *in situ*. C. Major portion of placenta. *c.* Posterior part of cervix. D. Vagina, about a third. Q. Paravesical pouch. V. Dilated portion of bladder, about a third. R. Rectum.

PLATE II.

Diagrammatic representations of gravid retro-positions of the uterus from various authors.

III.—CASE OF INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY LAPAROTOMY.

By A. G. MILLER, F.R.C.S.E., Surgeon to the Edinburgh Royal Infirmary.
Reported by ALEX. MILES, M.B., C.M., Resident Surgeon.

(Read before the Medico-Chirurgical Society of Edinburgh, 5th February 1890.)

IN the course of my remarks in June last, during the discussion on Intestinal Obstruction in this Society, I reported five cases of laparotomy for intestinal obstruction, which were published in the November number of the *Edinburgh Medical Journal*. Since reporting these cases, all of which proved fatal, I have successfully operated on one patient, whose case I now beg to lay before you. The case has been written out for me by Dr Alex. Miles, who was my house-surgeon at the time.

Mrs D., æt. 60, housewife, residing at Edinburgh, was admitted to Ward XXX., Royal Infirmary, Edinburgh, on the 22nd August 1889, under the care of Dr Affleck. Her leading symptoms were intense pain in abdomen, and vomiting.

History.—The woman states that she has enjoyed very good health all her life, but has had very hard work, chiefly washing. She is the mother of fourteen children. She is habitually constipated, with occasional attacks of diarrhoea, and sometimes colic. Three sisters died of phthisis.

Summary of present Illness:—

Aug. 21, 1889.—Strained herself putting clothes on to high rope; loose stool soon after.

- Aug. 22.*—Severe pain in epigastrium; vomiting.
Aug. 23.—Constipation; distension of abdomen; tenderness.
Aug. 24.—Operation; internal hernia reduced.
Aug. 25.—Passed flatus mid-day. Temp., 98°6; pulse, 80.
Aug. 26.—Patient wildly delirious. Temp. 98°4; pulse, 78.
Aug. 27.—Quiet to-day; slight trace of fæces in enema; wound dressed.
Aug. 28.—Improving.
Aug. 29.—Bowels moved to-day.
Aug. 30.—Wound dressed; deep stitches removed.
Sept. 2.—Dressed; all stitches removed; wound quite healed.
Sept. 6.—Patient got up.

History of present Illness.—The patient's present illness began by her having to go to stool on Wednesday afternoon, as the result of her having strained herself while hanging clothes on to a high rope. Her bowels were thoroughly evacuated, and after taking some tea she felt well enough to resume her work. While in bed about twelve midnight she was awakened by a severe pain in the epigastrium, which doubled her up. She had a strong desire to go to stool, but could pass nothing. She vomited occasionally. In the morning she took some castor-oil and opium, but she immediately vomited this as well as everything else she took. She continued to get worse, and was sent to Ward XXX. in the afternoon.

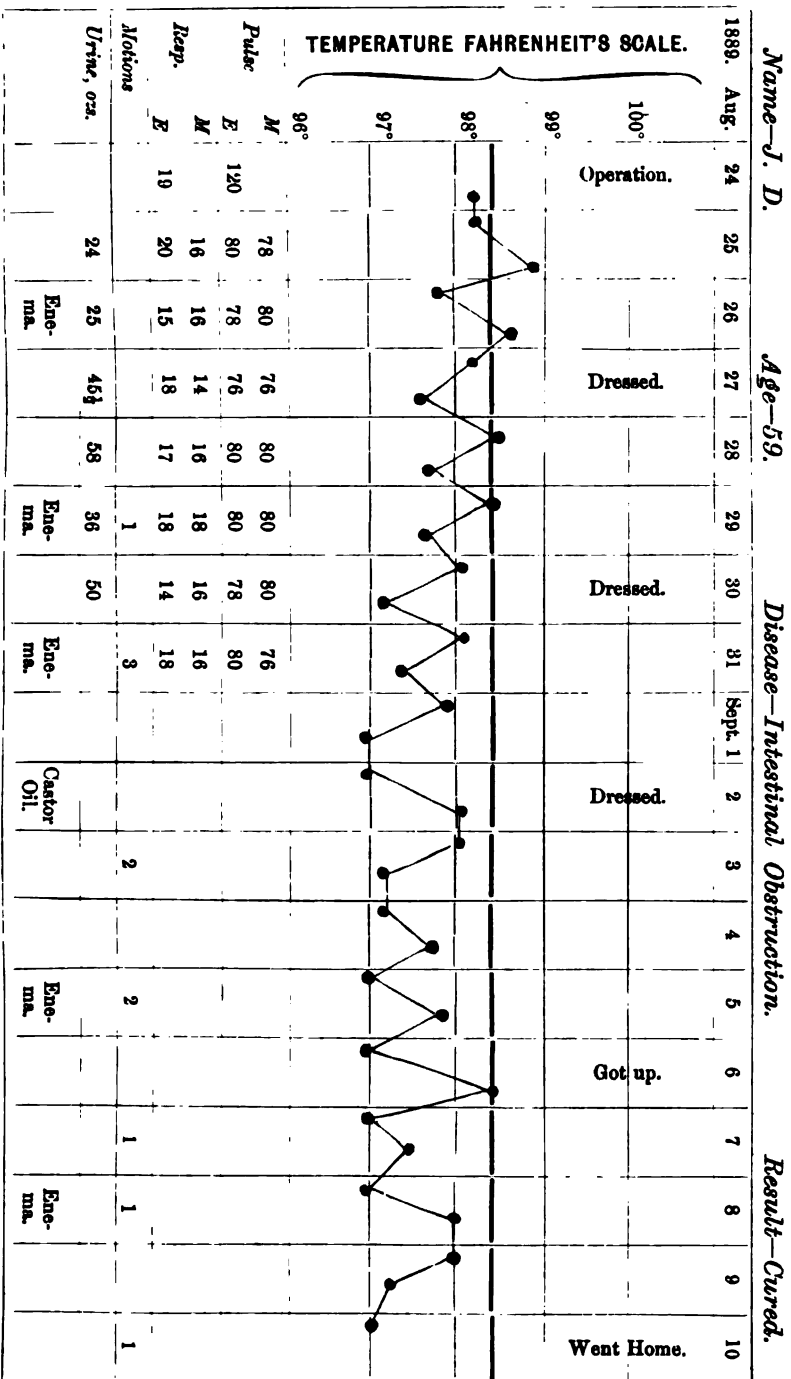
On examination the abdomen was found to be distended. It measured 28 inches round at the level of the umbilicus. It was tender to touch all over. There was no hardness or localized swelling on palpation. Under chloroform nothing abnormal could be felt per rectum or per vaginam, or bimanually. The rectal tube passed in for about 6 inches. About $\frac{3}{4}$ of a pint of warm water was all that could be injected; and when this quantity was thrown in the percussion note in the left flank remained unaltered. Purgative enemata, and castor-oil by the mouth, were given without result.

August 23.—Mr Miller saw patient with Dr Affleck, and recommended that the abdomen should be opened if the bowels had not moved by next morning.

August 24.—Further measures were tried without success. The patient was therefore removed to Surgical Ward No. 17 for operation.

In the afternoon the patient was put under chloroform, and the rectum was thoroughly examined. It was found to be very large and capacious. At the upper part the walls seemed to come together and form an obstruction, but by careful manipulation the finger could be got past this, and, when withdrawn, was stained with a yellow, soft, flakey material with no fæcal odour, probably the remains of some beef-tea enemata which patient had had.

The stiff rectal tube passed in about 12 inches, and was also



stained with this matter. Only a small quantity of fluid could be thrown into the rectum.

Mr Miller then decided to operate at once. A median incision was made from the umbilicus to the symphysis pubis. On opening the peritoneal sac a small quantity of fluid escaped. On searching the left iliac fossa, the sigmoid flexure was found collapsed, and apparently in a state of spasm. The small intestine (ileum) was next examined, and one part of it was found to be much congested and distended. There was an adhesion of the omentum to the peritoneum, and a knuckle of bowel had slipped into the band thus formed, and become strangulated. The band was divided and the constriction relieved. Immediately the collapsed bowel, which was also in a state of tonic spasm, distended with flatus.

The bowel was returned, and the abdomen closed *secundum artem*.

August 25.—Patient better to-day; pain gone; still slightly sick; passed flatus by bowel at night; temp. normal; pulse 80.

August 26.—During the night patient suddenly became very restless and abusive in her language. She tried to get out of bed, refused to obey the nurse, and answered in profane and obscene language. It was now learned for the first time that patient had been addicted to the use of opium for some years.

She was therefore put on full doses of morphia given hypodermically, and by this means was pacified.

August 27.—Patient had still to be kept under the influence of opium. Took food fairly well. Wound dressed.

August 28.—Patient better to-day. Passes flatus freely.

August 29.—Patient still improving. Bowels moved freely after a large enema.

September 2.—Wound dressed. Found to be quite healed. All stitches removed.

September 6.—Patient got up to-day, wearing an abdominal belt.

September 10.—Went home well.

February 4, 1890.—Patient came up to hospital to-day, and stated that she enjoyed good health.

There are two points in this case which I would like to remark upon—

1st, The fact that, while the obstruction was in the small intestine, it was impossible to inject the large intestine. This was apparently due to spasmodic contraction of the large gut. In this way obstruction of the large bowel was simulated, and was believed to exist.

2nd, The real cause of obstruction, an old adhesion of the omentum, and the passage of a portion of bowel between the omentum and peritoneum, could not have been positively diagnosed.

Perhaps I need hardly add that the case was one which could only have been benefited by laparotomy, and in which delay would have been fatal.

In determining to operate, I was guided by Dr B. W. Richardson's dictum, "because we are in the dark let us let in the light;" and in a case of intestinal obstruction the way to let in light is to open the abdomen.

IV.—FAT HERNIÆ IN THE INGUINAL REGION.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

(Read before the Edinburgh Medico-Chirurgical Society, 5th February 1890.)

THE chief significance of fat herniæ depends, I think, on the part they play in the production of herniæ of abdominal contents, whether bowel, omentum, or other organs. As I understand it, their mode of action in this respect lies in the influence exerted by them on the local resistance of the abdominal wall. On this point I would therefore offer one or two observations before speaking of the state of hernia adiposa particularly. Before doing so, however, I must express my indebtedness to Professor Braune of Leipzig for the material he placed at my disposal in his anatomical rooms, and for his valued advice and assistance.

One may readily allow that the stronger the so-called "thickened fascia transversalis" of the groin (which I would rather look upon and describe as tendon of the transversalis muscle), the less is any disposition to rupture present, but it must likewise be noted that if that structure be of *unequal* resisting power in different parts, such disposition (*i.e.*, to rupture) is increased.

Now, in practically all preparations which I have examined I have found two bands of tendon denser and stronger than the rest. One of these lies along the edge of the rectus, and is joined to it; the other forms the internal pillar of the deep abdominal ring.

In certain specimens exhibiting herniæ, in which the protrusion did not appear to be of very old standing, these bands or ligaments were specially well marked. I think one may justly suppose that the tendency to rupture is increased when the inequality of resisting power is great between them and the rest of the tendon. Thus, in the case of oblique inguinal hernia, one may hold that if the internal pillar of the deep ring be specially strong, the outer limit of the opening will, with more readiness, be separated from it when increased intra-abdominal pressure bears upon it, and so the deep ring will be opened up.

Some such view is indeed necessary to explain how a hernia can be produced in this situation by an equable intra-abdominal pressure, which one would rather expect to close the valvular opening of the canal. It being borne in mind that, according to my idea, the

internal pillar of the deep ring belongs to the transversalis tendon, one must note that it will become tense and resistant when drawn upon in the contraction of that muscle. This will slightly separate the two sides of the deep ring, and the peritoneum will form an incline ready for the descent of a hernia.

Such a state of matters is most completely brought about when the body is flexed on the thighs, and one knows how often an oblique hernia descends while a patient is stooping and straining, as in lifting a weight. When he resumes the erect posture, the structures forming the deep ring press upon the rupture, and he is made conscious of its presence. The fact that taxis for the reduction of hernia is most effectual when the thigh is flexed confirms the belief that in this same posture the deep ring is open.

These suggestions do not, of course, diminish in the least the importance of the structures of the superficial ring in relation to the permission of hernial protrusions, and their constriction or strangulation. With respect to direct inguinal hernia, I would suggest that their production would be favoured if the two bands I alluded to were greatly stronger than the intervening tendon—and this is often the case. I must apologise for dwelling on these matters, but the consideration of them is of moment, if, as I have suggested, a fat hernia may be a cause of any inequality in the resisting power of the wall.

It has been recognised that a sac of peritoneum may be drawn out from the cavity of the abdomen, and not extruded from it, and to this process we may now turn our attention. While engaged in the dissection of the groin, I had opportunities of examining several preparations in which there had developed the state of fat hernia. This condition has been observed by many anatomists and surgeons, and its general features are doubtless familiar to all. The process begins in a localized increase of sub-peritoneal fat, usually observed in relation to the abdominal openings of the inguinal and crural canals, seeing that at these parts a depression naturally exists, into which the fat may develop. It occurs elsewhere in the abdomen not unfrequently, but I shall only consider it as one meets with it in the inguinal region.

The interest of the process as occurring in relation to the deep abdominal ring is very great. The walls of the inguinal canal lie in close apposition, a relation which the intra-abdominal pressure tends to maintain. If, however, a mass of fat is formed in the sub-peritoneal tissue of the external inguinal fossa, as it increases it will insinuate itself in front of the defined inner pillar of the deep abdominal ring, and separate it from the anterior wall of the inguinal canal. The process thus begun goes on until the canal is wholly occupied by the fatty protrusion, which ultimately projects at the superficial ring.

I have observed the fat in the tissue of the cord, and also, in other instances, quite separate therefrom, and lying above it. As

the protrusion of fat increases in size and weight, it renders the canal still more patent, and by its weight, and also by adhesions formed with the superficial tissues, *the peritoneum is drawn down after it*. There may first be observed a mere puckering of the membrane at the point where the fat is attached, which deepens until a distinct digital depression forms; this increases in size and depth, passes into and through the canal, and forms a sac ready for the reception of bowel or other contents.

The method by which this result is brought about is probably twofold. In the first place, the peritoneum being displaced by stretching of the loose sub-peritoneal tissue, passes into the inguinal canal by sliding on the subjacent layers, if one may so express it, but subsequently in all probability the tissue itself of the membrane is stretched.

In relation to the femoral canal, fatty herniæ may even more commonly be noticed if the dissection of the groin be carefully carried out. The fat mass lies in the crural canal, and may form a tumour in the groin of varying size. It often becomes adherent to the superficial fatty layer, with which it may be removed in dissection, and so escape notice. Here also the peritoneal sac is drawn down the canal, and may be followed by a hernia of the bowel on any rapid movement or increase, from any cause, of the abdominal pressure.

In one interesting dissection, the same mode of origin of a rupture was observed in Hesselbach's triangle. The condition was in the earliest stage, the peritoneum not even being puckered. On stripping it off there was found *attached to it* a small mass of fat lying just external to that tendinous band already noted as adjoining the rectus tendon. When the fat was removed, one found that it had projected into a deep fossa, which easily admitted the point of a finger, and passed inwards and downwards, ending at the superficial abdominal ring.

This condition would lead one to surmise that the development of a direct inguinal hernia may, in some cases, progress as follows:—(1.) The formation of a hollow in the wall, the transversalis tendon in its weaker part yielding under the pressure of a mass of fat. The inequality of local resisting power is thus increased. (2.) The filling of this fossa by a peritoneal pouch. (3.) The entrance of intestine or other contents into the sac thus formed. The same cadaver also exhibited a fatty hernia in the right crural canal, and "lipomata" of the linea alba. The facts of such a case as this afford some explanation of the clinical experience of many observers, and among these Richter, Scarpa, Sir Astley Cooper, and Cloquet, that individuals who become rapidly emaciated are prone to the occurrence of hernia. It is obvious that on the absorption of the fat in a fossa such as I have just described, the hollow remaining is a natural place for the peritoneum to enter into; similarly in the case of the

inguinal and crural canals when the distending fat becomes absorbed in the general process of emaciation, they are left empty and lax; it is even conceivable that in the process of absorption the peritoneum would be still further drawn into the canal. These fat masses, being in most instances attached to the fundus of the sac, may escape notice during operations on herniæ when attention is directed mainly to the neck of the sac; it may also be supposed that the presence of a hernia in old-standing cases could cause the absorption of the fat which was really the pioneer of the hernia, or so alter it as to prevent its recognition. They are, however, often enough met with and recognised during operation, and should be kept in remembrance, for while to mistake the hernia for superficial fat could cause only inconvenience and delay, to mistake it on the other hand for omental fat, and attempt its removal or reduction, would be to expose the patient to one of two dangers, viz., wounding of the gut, or reduction of a strangulated hernia together with the sac, the strangulated state not being relieved.

In the cases I examined by dissection, the mass of fat did not envelop a peritoneal sac, but it may do so. It lay only at the fundus of the sac, and in its centre was a mere fibrous core, probably composed of the sub-peritoneal fascia, or "*fascia propria*," in the meshes of which the fat had developed.

Fatty herniæ have been known to anatomists since before the days of Morgagni in 1745, and in 1810 cases were described by Pelletan with great fulness. He states that he could in every case effect reduction of the tumour, which certainly could not be done in all the preparations I examined.

Professor Annandale has drawn attention to the practical importance of recognising and carefully examining these fat-masses during operations for the relief of hernia; and Jonathan Hutchinson, jun., has compiled a large number of instances, and communicated his results to the London Pathological Society.

Tillaux and Cloquet also allude to the condition, the latter expressly stating that pressure from within or traction from without, or both combined, may prove the efficient cause of a rupture.

In size the fatty herniæ vary. In one case recorded by Prof. Annandale, the mass was of the size of a small orange. Usually, I believe, they are so small as to escape all notice during life, but a small doughy and badly defined swelling in a hernial region, not painful to pressure, and giving no impulse on coughing, should suggest to the mind as a possibility a hernia of sub-peritoneal gut. If cut down upon, the fat will be found to be arranged in large closely-packed lobules, covered by a delicate membrane. The specimens I have examined were all small, varying in size from that of a filbert to that of a large chestnut; yet they formed a series which, to my mind, illustrated very clearly the early stages of the process, and the mode of development of a true hernia as a sequel to it.

V.—NOTES ON A CASE OF HYDROCEPHALUS WITH MENINGOCELE.

By G. OWEN C. MACKNESS, M.D., Broughty Ferry.

(*Read before the Edinburgh Obstetrical Society, 11th December 1889.*)

ALTHOUGH the condition which was present in the case of which the following are notes is probably not at all rare, yet there were some peculiar features in this particular one which may prove of interest to the Fellows of our Society. I have therefore ventured to bring forward these short notes. To myself the case was not only of great interest, but also most instructive.

I was called one morning a few months ago to a primipara in a neighbouring village, who stated that she had been in labour for about five hours, and that the waters had broken about half an hour before my arrival. On proceeding to examine the patient, I found that there had evidently been a very copious discharge of liquor amnii, since the sheets were completely soaked with it. The abdomen, however, was still very much distended. The pains were strong, and coming about every five minutes. On examining per vaginam my finger came at once upon a tense bag of fluid, which was situated almost immediately inside the vaginal orifice, and became more tense as a pain came on, giving exactly the impression of having to deal with the intact bag of membranes. When the finger was passed further up the vagina and to the side of this bag, the os uteri could be made out to be almost fully dilated, while still further up the bones of the foetal skull could be felt, loose and movable, as in the case of a putrid foetus. It was also possible to reach one of the ears.

The first idea was that the membranes had ruptured early and high up, thus allowing the escape of a portion of the liquor amnii, and that the foetal head had then descended further, so as to plug up the opening, while there still preceded it a bag of membranes, which became more tense with every pain. A more careful examination, however, showed that this could not be the true state of matters, but that the bag was undoubtedly connected closely with the foetal head, and that the case must therefore be one of meningocele.

The pains continued strong and frequent, and the head rapidly descended in the pelvis, being, however, always preceded by this large tense bag of fluid, which eventually came to be protruded from the vulva as a pear-shaped body, while the head was still some way up the vagina. This bag now exactly resembled the condition of affairs which is occasionally seen when the bag of membranes remains unruptured until the head is almost born. The child was born about half an hour after my arrival, and was dead. The placenta was delivered without difficulty a few minutes after. The mother made a rapid and uninterrupted recovery.

The child was small, but apparently at full term. It had evidently only been dead for a short time, which coincided with the

mother's statement that she had felt the foetal movements up to about a week before the commencement of labour, and that they had then suddenly ceased. The bones of the skull were all loose and easily movable under the scalp, while they were widely separated from one another. The greater part of the occipital bone was evidently absent, and over this region was a tumour of the size of a large orange, and apparently containing fluid. Over the tumour the scalp was very much thinned and almost translucent, while there was no hair covering it. In addition there was a complete cleft palate, but no other malformation. The placenta and membranes were normal in appearance, but there had evidently been the condition of hydramnios. The specimen could, unfortunately, not be obtained, and was buried even before any photograph or drawing could be taken of it. The condition, then, was one of hydrocephalus with meningocele. Besides the exceptionally large size of the tumour, the especial points of interest were, I think, the fact that the child lived almost to full term, and the curious condition presented during labour. Had the meningocele not been present, the labour would have been a very difficult one, owing to the hydrocephalus; but as the head engaged in the pelvis the fluid was pressed into the yielding tumour, and thus the head became even smaller than the normal foetal skull, and labour was therefore exceptionally easy. The condition presented by the tumour was a very curious one; and as it passed through the partially dilated os uteri it might very easily have been mistaken for the unruptured bag of membranes, and have been treated accordingly. Such a mistake, however, would be prevented by making a more careful examination and pushing the finger up alongside of the side of the tumour, so as to feel the more solid and easily recognisable portions of the foetal skull.

The mother's condition during the pregnancy had been quite satisfactory, except that she had been slightly incommoded by the condition of hydramnios which coexisted. It was rather a strange coincidence that there had occurred only a few yards off, and a few days before this, a case of spina bifida, with some other curious malformations. This latter case I only saw in consultation; but as I understand that notes of it are to be published shortly by the medical man under whose immediate care it was, I will not do more than thus mention it to-night.

VI.—HYPNOTISM, OR PSYCHO-THERAPEUTICS.

By R. W. FELKIN, M.D., etc., Lecturer on Diseases of the Tropics and Climatology, Edinburgh.

(Continued from page 737.)

It is now time to refer to the therapeutics of hypnotism, or suggestive therapeutics. The subject may be divided into two parts—1. The alleviation or cure of various diseases by means of

suggestions made to a hypnotised person, or of post-hypnotic suggestions; 2. The use of hypnotism in surgical operations, or to diminish the pains of parturient women. The last part will occupy little space, and I will notice it first.

It is an old story now that surgical operations can be performed painlessly upon a hypnotised person, and, as I previously mentioned, it is probable that, had chloroform not been discovered as an anæsthetic, hypnotism would be in a very different position now to what it is. As it is, it will most likely be rarely, if ever, used in operative surgery, partly because the anæsthetics in vogue render good service, partly because it is not always possible without numerous attempts to render a person so deeply hypnotised as to be insensible to pain, and partly, too, from the mere fact that the expectance of the operation in many cases renders any attempt to hypnotise futile. There are, however, some cases in which, on account of disease of either heart or lungs rendering the administration of chloroform or ether inadvisable, it may be worth while to have recourse to hypnotism. It is needless to give references to operations which have been performed upon patients during hypnotic sleep; they have been detailed by Esdaile, Elliotson, Liebault, and many other writers.

I am not sure, however, that in obstetric practice hypnotism may not have a future before it. In looking over the literature on the subject there are, it is true, not very many cases on record, and, naturally, some of them are failures, yet we do find certain cases in which women have been hypnotised, and labour has gone on to a successful issue quite painlessly. As a matter of fact, it seems that it is difficult, although possible, to hypnotise a woman for the first time after labour has commenced; but, especially if the woman has been hypnotised several times previously, there appears to be no doubt that the method may be employed successfully. A case is recorded by Pritzel of a woman (primipara) who experienced no pain during parturition under the influence of hypnotism. She had, however, been previously hypnotised several times.¹

Wagner relates three cases. The first, that of a Mrs J., a perfectly healthy woman. Before labour he hypnotised her three times. Labour commenced at 11 A.M. "Pain steadily increased in severity, and at 2 P.M. I produced hypnotic sleep for forty minutes. While asleep the pains became stronger, the abdominal muscles contracted well, the patient helping herself as much as when awake. While asleep there were some fifteen or sixteen strong pains; the pulse was regular and strong, and the respiration normal. On being awakened, the pains came less frequently, and were not so severe, about the same as before sleep, for an hour. Then I produced sleep again during severe pain. Asleep the pains became more severe and expulsive. In the severe pains the patient moaned, pinched her hands, and strained as if awake, but

¹ *Wein. Medic. Wochens.*, 7th November 1885.

when awakened she said she had felt no pain. The vertex was now at the vulva, and the patient refused to be put to sleep again, owing to the fault found by the 'old women' who were there, and who did not believe in 'these new-fangled notions.' The child was born the third pain after awakening the sleeper. The last pains before she was aroused would almost awaken her; the eyes would open, but presented a vacant stare of waking somnambulism, and would close by making passes down over them. She would stop moaning on being told that she had no pain. Three or four pains were all she had that seemed partly to arouse her. From the fact that the uterus was somewhat tardy in contracting after awakening, I was afraid to attempt the removal of the placenta while she slept, lest post-partum hæmorrhage should occur. Accordingly in the two cases following I left the expulsion of the placenta to the good offices of Nature. Cases 20 and 21 were that of a primipara and that of a multipara. In these cases I noticed the same phenomena as in the above. The abdominal muscles contracted, and the patients helped themselves as much as if they had been awake. I awakened one once and the other twice before birth. As soon as the child was born I awakened the sleeper, fearing to remove the placenta, as the whole procedure was somewhat of an innovation. I do not really think that the uterus would relax, but I was content to wait for older practitioners to enter the same field and give us younger men some precedent to cite in view of accident."¹

Moll, in referring to this subject, believes that hypnotism may be useful in labour; and, summarising the writings of Lafontaine, Mesnet,² Secheyron, Auvard, Thomas, and Varnier, says: "The results obtained were not unfavourable; regular and strong uterine contractions took place, which could often be influenced by suggestion, and were rendered painless."

Dr de Grandchamps gives the case of a young woman, which it may be of interest to quote.

E. B. was 17 years of age, and by occupation a washerwoman. She entered the Hospital de la Charité, Paris, on 29th December 1888, as on account of her condition she was unable to continue regular work. She was not in the slightest degree hysterical, and had never presented any nervous affection. Her parents were thoroughly healthy, as also her three brothers and three sisters. None of the family had ever suffered from any nervous complaint. E. B. had suffered from privation, and was pale, thin, and anæmic, but had no organic disease, and was possessed of a good constitution. She had never been hypnotised.

Knowing that one of the principal characteristics of the hypnotic

¹ Wagner, *New York Medical Journal*, 18th May 1889, p. 542, *et seq.*

² *Der Hypnotismus*, Moll, p. 225; *Revue de l'Hypnotisme*, August 1887, Frauenarzt, December 1887; see also Dumont Pallier's case, 26th February 1887; *Société de Biologie*, and *Der Hypnotismus in Der Geburtshilfe*, Sallia, 1888.

state was insensibility on the part of patients to pain, Dr de Grandchamps determined to try to save E. B. from pain during labour. He therefore hypnotised her several times previously, sending her to sleep, without the least difficulty, by means of rotating mirrors, when she presented very completely the three principal characteristics of the condition of fascination—*anæsthesia*, *cataplexy*, and *suggestibility*. She was hypnotised two or three times a week, with the effect of greatly improving her condition. Her colour and good looks returned, and her appetite and sleep became excellent. Labour took place on 1st May. When the doctor arrived he found the period of expulsion commencing. Up till this point E. B. was suffering the usual pain normally experienced, but in the interval of two pains the doctor effectually hypnotised her by fascination. He then suggested that she should vigorously help on the contractions herself, but not feel the pain, with the result that from this time expulsive efforts were more energetic, but the patient ceased crying out. Dr de Grandchamps suggested that the patient should have a desire to bear down every minute, after which she made an effort to that effect each minute, and then had a period of repose. This methodical and regular action soon brought the head to the vulva. Fearing a too speedy delivery, Dr de Grandchamps suggested to the patient to stop bearing down. She at once ceased doing so, and the head quietly presented, and the child was born without any effort on her part. The placenta followed in the normal manner. Everything being over, the mother awoke in about a quarter of an hour, absolutely unconscious of all that had happened since the doctor's arrival. She was greatly astonished when shown the child in the cradle, as she had been perfectly free from pain. All went on well with her afterwards, and both mother and child left the hospital at the usual time and in the best condition. The mother, an excellent nurse, returned several times to express her gratitude and satisfaction. All the doctors present were satisfied as to the superiority of this method of treatment in contrast with *anæsthesia* produced by the usual means. It is necessary to remark that the action which the rotating mirrors have upon the patient is much less marked than that caused by the usual methods of hypnotising, and it does not produce profound hypnosis—that is to say, the usual conditions described by writers as *lethargy* and *somnambulism* are not produced. The method is free from danger, and its only drawback is that it is necessary to employ it several times before the onset of labour, as one cannot be always sure of it affecting the patient at once.¹

I must not quote more cases with regard to this interesting subject; suffice it to say, that Sallis recommends hypnotism not only to relieve labour pains, but also as exceedingly useful in uterine inertia; and Foy admits that in cases where heart and lung

¹ *Revue d'Hypnologie*. Paris, January 1890.

troubles preclude the ordinary anæsthetics, hypnotism may fairly claim a trial; he relates a case in which it was employed upon a very hysterical woman, where it not only diminished the pains of labour, but also protected the lives of both mother and child, which were endangered by the patient's acts.¹

I now pass on to the alleviation or cure of various diseases by means of suggestions made to a hypnotised person, and by means of post-hypnotic suggestions. Braid, in 1843, wrote:—"This power can be beneficially directed to the cure of a variety of diseases which are most intractable or altogether incurable by ordinary treatment."² But Liebault, in 1866, was the first to recognise the fact that the cures or alleviations attained were due to the suggestions which he made to patients during hypnotic sleep. It was not, however, until Bernheim took up the matter in 1882 that records of cases were published in sufficient number and related with sufficient scientific accuracy to enable us to form a just estimate as to the value of hypnotism. It may be as well to state at once, that though, as the sequel will show, numerous cases can be cured promptly—that is to say, after one hypnotisation—yet probably in the majority of cases several operations are required before cure or alleviation is attained, and, indeed, in not a few cases where brilliant results have followed hypnotic treatment that treatment has been continued for weeks, or even months, before indubitable results have been obtained. No one, I suppose, claims for hypnotism that it is a panacea for all the ills that flesh is heir to, yet it seems to me that on reviewing the field in which it has been successfully employed it must be admitted that it should occupy a place in our therapeutic methods.

It has been said by those who object to hypnotism, and truly, that throughout the ages the cure of some diseases has been attained by means of charms, or by sudden emotions, or by the mere individuality or will power of the attendant physician. But it does not appear that such cures have been obtained in anything like the proportion which can be justifiably claimed by hypnotism. I have thought it well, before detailing some illustrative cases, to introduce a table giving the results of 564 cases which have been treated by means of hypnotism, and in arranging these cases I have followed the classifications given by Bernheim.

Total number of cases treated, 564; of which 240 were cured, 200 greatly benefited; 72 cases were failures, and 52 patients retired after two or three sittings. Roughly speaking, as far as one can get figures to base an opinion upon, 60 per cent. of the cases are cured, 30 per cent. are improved, and only 10 per cent. are failures. I could have added to this list considerably had I taken all the isolated cases which occur scattered throughout the literature of the subject, but I felt it better to restrict the inquiry to the publications of well-known men. The table will, however,

¹ *British Medical Journal*, 1888, vol. i. p. 962.

² *Neurypnology*.

give an idea as to the description of cases which are most likely to be benefited by hypnotism, and will show, I think, that men of eminence have really proved that some good at any rate is to be obtained from this method of treatment. I have been careful, too, to refer alone to those who will be acknowledged by all as men who are well qualified by extensive experience to give correct statistics.

	No. of Cases.	Cured.	Im- proved.	Failed.	Retired.
Organic Diseases of the Nervous System, ...	10 B. 29 R. 1 T.	7 B. 1 R. 1 T.	2 B. 13 R. ...	1 B. 10 R. ...	... 5 R. ¹ ...
Hysterical Diseases, ...	17 B. 40 R. 18 B.	16 B. 9 R. 17 B.	... 24 R. 1 B.	1 B. 3 R. ...	... 4 R. ¹ ...
Neuropathic Affections, ...	164 R. 1 W. 1 T.	47 R. 1 W. 1 T.	76 R.	22 R.	19 R. ¹
Various Neuroses, ...	15 B. 4 T. 3 B.	14 B. 4 T. 3 B.	1 B. ... ...	... ... ...	... ... ...
Dynamic Pareses and Paralyses, ...	1 T. 4 B. 1 T.	1 T. 1 B. 1 T.	... 3 B. ...	... ... ...	... ... ...
Gastro-intestinal Affections, ...	12 B. 17 R. 2 T.	12 B. 2 R. 2 T.	... 6 R. ...	... 7 R. ...	... 2 R. ¹ ...
Various Painful Affections, ...	19 B. 27 R. 5 B.	17 B. 7 R. 4 B.	2 B. 14 R. 1 B.	... 2 R. ...	... 4 R. ¹ ...
Rheumatic Affections, ...	68 R. 13 V. 6 V.	17 R. 13 V. 6 V.	30 R.	10 R.	11 R. ¹
Neuralgias, ...	1 T. 8 V. 1 F.	1 T. 8 V. 1 F.	... ... ...	... ... ...	... ... ...
Amenorrhœa, ...	5 V. 60 R. 3 W.	5 V. 10 R. 3 W.	... 27 R. ...	... 16 R. ...	... 7 R. ¹ ...
Dysmenorrhœa, ...	1 P. 1 P.	1 P. 1 P.	... ...	... ...	... ...
Menorrhagia, ...					
Irregular Menstruation, ...					
Mental Diseases, ...					
Labour, ...					

It will be seen from the foregoing table that one cannot claim for hypnotism that it cures organic disease, but in organic disease it is often useful because of its action in removing, or at any rate alleviating, either pain or sleeplessness, or some other distressing symptom. I shall now proceed to relate as briefly as possible a few records illustrating successful hypnotic treatment of cases falling under the classification in my table, with a few remarks in passing

¹ B., Bernheim; R., Van Renterghem and Van Eeden; T., Tuckey; W., Wagner; V., Various authors, periodic literature. The R.¹ refers to 52 cases in the practice of Van Renterghem and Van Eeden. These cases should, perhaps, hardly be noted, as the patients gave up the treatment after one or two sittings.

as to the advantages or disadvantages likely to be obtained in the various categories of disease.

With regard to the function of menstruation, it certainly seems to be an undoubted fact that great good can be accomplished by the practice of hypnotism, and this is demonstrated by the results obtained both in the north and south of Europe. Amenorrhœa, menorrhagia, and dysmenorrhœa have all been markedly influenced by the suggestive treatment. Most men who are called upon to treat these various disorders will probably allow that they often wish they had another string to their bow. Hypnotism gives it, and case after case might be quoted where the procedure has been attended with signal success,—success which drugs could not, at least so far have not, yielded. The other day I was talking over this subject with one of our leading gynecologists, and after I had related some cases which had come under my observation, he, like Dr Yellowlees at the last meeting of the British Association, said he was astonished! He was far from being inclined to admit that hypnotism could do what I believed it could. I hardly wonder at his disbelief, for unless such cases have been seen they have a certain Münchhausen-like flavour about them. But for facts. Let us see what Forel says.¹ I abstract a case of his.

A servant maid suffered from profuse menstruation in the summer of 1888, and notwithstanding energetic treatment, she got worse. The discharge occurred at intervals of fourteen days, and lasted for eight. She looked like a corpse, so anæmic had she become. Her appetite was lost; so was her sleep. One evening she was brought to Forel. For four days she had been losing excessively. He readily hypnotised her, suggested to her that the discharge should cease, that she should go home and sleep well and eat plenty of food. At once the flow was stopped, and at the next sitting he suggested to her not to be unwell for four weeks, and that then the period was only to continue for two and a half days. All went well; her appetite returned; she slept well; and for twenty-seven days she suffered no loss. Her next period occurred one day before he had suggested, but it only lasted two days and was moderate in amount. She was cured, and subsequently only menstruated every four weeks, and then but moderately.

Another case is given by Bernheim. "Mrs H., aged 35, suffers from profuse menstruation every eleven or fifteen days. This condition has obtained for the last two years. The discharge is very profuse, and lasts for five or six days. It is sometimes accompanied by very sharp cramps. For two or three days before each period she is irritable and nervous, and cannot bear her children about her. These symptoms disappear with the menstruation." After detailing the treatment, Bernheim sums up by saying:—"A woman who menstruated profusely for five or six days every eleven or

¹ *Der Hypnotismus, seine Bedeutung und seine Handhabung*, Stuttgart, 1889, p. 65.

fifteen days, and who never had an interval of more than twenty-one days (all her life) between her periods, under the influence of hypnotic suggestion came to menstruate successively on the 26th, 24th, 25th, 26th, 24th, 27th, and 29th days, and since regularly two days either before or after the 28th or 29th day, and, be it noted, the period came on painlessly and no symptoms accompanied the discharge."¹

Next, with regard to retarded menstruation, we find that the same author relates a case of Mdlle. C., aged 25. She saw him on November 17th. She was not pregnant. Her last period was on the 7th of October, and for some days she complained of constriction about the waist and swelling. She ate more than usual, and her digestion was very good. She was hypnotised and told to menstruate on the 30th, and on the 30th she came back and said that the menses appeared in the morning without any pain. She was then told that the next period was to occur on the 28th of December, and so it did without either pain or discomfort.²

Other cases of amenorrhœa cured by suggestion are related by Voisin and others.³

Another point to which I wish to call attention is, as to whether hypnotism can be, and ought to be used in the education of children. It has been said by various writers—Bérillon, Hémet,⁴ Durand,⁵ Ladame,⁶ Voisin, Liebault, and Bernheim, amongst others, that hypnotic suggestions can be utilized with advantage in the education of children, and that they can be rendered quicker and sharper in attaining knowledge; that idle or lazy children can be changed into industrious students; but more than all this, that what one may term vicious or incorrigible children may likewise have their characters changed, and instead of being allowed to grow up a curse to themselves and to their companions, they may be transformed into useful members of society. Obersteiner of Vienna, Desjardines, and others, including an anonymous author of a pamphlet on the subject,⁷ strenuously oppose the idea, not perhaps because they doubt the possibility of it, but more because they fear the harm that might be done to the young nervous system by such procedures. Moll calls attention to the fact, that what has been written on this subject has been greatly misunderstood, and that many have thought that authors have advocated the introduction of hypnotism into general school use. Nothing of the kind is really intended. What is meant is, on the one hand, to treat many bad habits as one would treat disease; and on the other, to treat depraved young persons by special hypnotic procedures. He also refutes the ideas which have been expressed by

¹ *Suggestive Therapeutics*, Bernheim, p. 404.

² *Ibid.*, p. 399.

³ *Annales Médico-Psychologiques*, March 1887. ⁴ Congress at Nancy, 1886.

⁵ *Revue de l'Hypnotisme*, Nov. 1886.

⁶ *Ibid.*

⁷ *Der Hypnotismus in der Pädagogik*. Berlin, 1888.

Blum, Seeligmüller, and others, that by hypnotising children they would be turned into mere machines, and all "freewill" set aside. What is aimed at, says he, is to give the child a strong bias for good. As in education conscious will is directed into a definite path, so is also the case in hypnotism, for without consciousness hypnotic suggestion is impossible.¹

I will quote one or two cases to show what may be done in this connexion, and leave them to tell their own tale. Liebault says, "A boy who at school had habitually been at the bottom of his form was by this treatment so incited to work that he soon occupied a place at the other end. Another child, seven years of age, so obtuse as to be almost an idiot, was so benefited by suggestion that in three months he could read, write, and do the first four rules of arithmetic."² The following case of moral depravity in a boy cured by suggestion I will quote in full. On 9th June 1888, M. F., a youth aged sixteen, was brought to Dr Voisin at the Salpêtrière. From the age of six or seven he had been incorrigible. Not only did he tell lies, steal, play truant, and behave ill generally, but he also tried to corrupt all the children with whom he came in contact. He became worse and worse as he got older, and was turned out of several institutions into which his mother had procured his admission. (Dr Voisin describes some of his vices, which are unfit for repetition, and which prove the youth to have been utterly depraved and bad.) On examination he was found to have an internal squint of the left eye, nystagmus, and haziness of the cornea. The tongue deviated to the left. Otherwise he was well-made and healthy. He read with difficulty, and was very ignorant, though his memory and power of observation were sufficiently good. Dr Voisin endeavoured to hypnotise him, but was not successful until the third séance. Once asleep, suggestions of moral reform were made. He began to improve at once, and by 6th July the youth was absolutely transformed. The wish to do evil first disappeared, and was then replaced by a desire to do right. His insubordination and disobedience had given place to a wish to please his mother. He expressed to Dr Voisin the happiness he felt at being thus changed. He saw the doctor again on 6th October, six weeks after the discontinuance of the treatment, and the cure was maintained.³

A case which Bernheim relates of anorexia, insubordination, and indolence in a child, with rapid physical and moral improvement caused by suggestion, is too long to quote, but is remarkable. Bernheim says of it, "This fact of rapid moral improvement of character transformation obtained by suggestion shows that the application of hypnotism to pedagogy is not an illusion. Have we

¹ *Der Hypnotismus*, Moll, p. 226; see also p. 160.

² *Psycho-Therapeutics*, Tuckey, p. 64. Liebault, *op. cit.*, p. 357.

³ *Psycho-Therapeutics*, Tuckey, p. 361. For details see Voisin, *Revue de l'Hypnotisme*, Nov. 1888.

interfered with this child's liberty because we have suppressed his bad instincts?"¹

Du Prel also refers to a boy who was an incorrigible thief, and who, when hypnotised, confessed and told where he had hidden the stolen goods. He prophesies that the time will come when hypnotism will be used to lead youths of bad character into paths of rectitude.² Forel, in referring to this same point, makes some very wise remarks. He holds that in dealing with such children or young persons the treatment should be like the medicinal treatment of symptoms. Bad habits may be eradicated by means of hypnotism used as a therapeutic agent. The physician should seek to obtain a definite effect, and when that effect is attained the treatment should be discontinued and not carried on *ad infinitum*. He keeps his mind open as to the advisability or not of using hypnotism in the training of ordinary children. He points out very forcibly that the influence of teachers and environment exercises a most marked effect upon the taught, and that wise training consists in giving the child suggestions which it unconsciously appropriates and then acts upon. In hypnotism this process is carried to an extreme point, from the fact that during hypnotic sleep all influences other than the suggestions made are shut out.³ Sallis allows that bad habits can be cured, but does not approve of the general use of hypnotism for educational purposes.⁴

I regard this whole question as being a very important and interesting one, and although I cannot help being inclined to regard the use of hypnotism in general education dangerous, it seems to me that there are classes of children who could with safety be subjected to the trial of such a means of training or cure, call it what one will. If one may trust the experience of writers on this subject, there seems to be a wide and wonderful field of usefulness for hypnotism in this direction.

I must now pass on to another class of cases which is also of great importance, namely, dipsomania, morphinomania, opium eating, and chloral drinking, etc., and the use of hypnotism in regard to them. Every one will appreciate the difficulty of treating such morbid habits, and it is only to be expected that hypnotism may be tasked to the utmost in combating them. Yet success has been attained. Dipsomania has been successfully dealt with by Van Eeden, Forel, Fontan, Hösslin, Ladame, Voisin, Widmer, and Wetterstrand. Forel relates a noteworthy case, in which a man, aged 70, who suffered from chronic alcoholism, was completely

¹ *Suggestive Therapeutics*, Bernheim, pp. 320, 321. Voisin's papers in the *Revue de l'Hypnotisme*, 1886-87, should be consulted by those interested in this subject.

² *Das Hypnotische Verbrechen*, p. 47; and Du Potet, *Journal du Magnetism*, iii. p. 233.

³ *Der Hypnotismus*, Forel, pp. 50, 51.

⁴ *Ueber Hypnotischen Suggestionen*, Sallis, 1888, p. 40.

cured. Twice, ten years ago, he had cut his throat when suffering from delirium tremens, and from 1879 to 1887 he was confined in the lunatic asylum of Burghölzli as a confirmed drunkard and scamp. He used every chance to get drunk, and, when drunk, he had hallucinations, and was dangerous both to himself and his companions. He was always creating disturbances in the asylum. He suffered from severe lumbago, which almost rendered him incapable of doing any work. Forel had long given him up as incurable, but in 1887 he hypnotised him. The result was that, after a few sittings, he was receptive of suggestions. The constant disturbances he had instigated ended as if by magic, and of his own initiative he requested that no wine should be given him (being considered incurable, a small quantity had been allowed him). Soon after the lumbago left him (it has not returned, March 1889), and his craving for alcohol disappeared. After the middle of 1888 he was permitted, even with money in his pocket, to go freely into the town, and he has never taken anything but coffee and water. He is now a very energetic member of the teetotal society, and he does not even require anti-alcoholic suggestions. Forel says that this case belongs to the best results obtainable, but that like results can be obtained in most patients in whom one can induce an ordinary degree of somnambulism.¹

I have not space to quote other cases of a like nature, but some very interesting ones are placed on record. In all cases the treatment is carried out by instilling into the mind of a patient during hypnosis a disgust for alcohol, and by requiring him to promise faithfully never to touch it. It cannot be said that cases of this nature can be all cured with equal rapidity, for, in some cases, although, perhaps, good results will be obtained after two or three weeks' treatment, yet it has been found necessary to repeat the suggestions in many cases for once a month for a year to prevent the possibility of a relapse.²

By means of hypnotism Voisin cured in a month a person, aged 28, who injected a gramme of morphia daily;³ but is unnecessary to quote other cases of this nature.

Most men who have used hypnotic suggestion have been very successful in treating insomnia. It is found in almost every case even where a patient is only slightly susceptible to hypnotic suggestion, that sleep can be induced on the first occasion. And in cases of a most intractable character, two or three séances are found to result in a perfect cure. This method is likely to render service in many such cases—as, for instance, after surgical operations, or, again, in incurable organic diseases, where want of sleep is a most troublesome symptom to combat by ordinary drugs, and

¹ *Der Hypnotismus*, Forel. Stuttgart, 1889.

² See *Psycho-Therapeutics*, Tuckey, p. 64. *British Medical Journal*, vol. ii. 1889, p. 649.

³ *Ueber Hypnotische Suggestionen*, Sallis, p. 32.

where it is an intense relief to the patient to have this distressing symptom removed.

Pain, either as a symptom of disease or dependent upon rheumatism or neuralgia, is often benefited in a most marvellous manner by a resort to hypnotism. Very numerous cases are on record to prove this point by all authors dealing with suggestive therapeutics. In many cases a single hypnotic séance is all that is required to effect cure, but even the most severe and apparently intractable cases will readily yield after several sittings. One or two examples may be given. Tuckey quotes a case in which Dr Liégeois cured a woman, aged 28, who had suffered from migraine for four years. She had daily attacks of sick headache. Her health was deteriorating in consequence, and life had no attraction for her. She was easily hypnotised, and told that the afternoon should pass without an attack of pain. She returned in the evening, not having experienced pain, was again hypnotised, and suggestion was made that there should be no pain next morning, nor henceforth. For a year after, until the time that the case was reported, she had continued free from her trouble.¹ Bernheim relates a case of sciatica in a young man, aged 22. He had suffered from severe pain for three days. He was cured by a single suggestion, and the pain did not return.²

Most authors relate cases of the cure of rheumatic pains, both muscular and articular. Thus Bernheim gives nineteen cases, of which all were cured—such as rheumatic paralysis of the right forearm, pleurodynia and lumbar pain, chronic articular rheumatism (wrists and insteps), gonorrhœal rheumatism, etc. It is needless to detail these cases.

Neuropathic affections may also be cured, as, for instance, nervous aphonia, post-epileptic tremors, girdle-pain, and pain of the right groin with difficulty in walking for twenty months, vertigo, moral depression connected with cardiac disease, insomnia through habit, etc.; and various neuroses, such as general chorea, obstinate writer's cramp, choreic movements, and nocturnal incontinence of urine, have been cured in numbers of cases. Some cases of asthma are also cured, or at any rate greatly benefited, as are persons suffering from chlorosis. Indeed, one may say that nearly half of such cases are cured completely, and in the remainder it is found that the palpitation, hemic murmurs, and vomiting at any rate are cured.

With regard to gastro-intestinal complaints, it appears that much good also can be accomplished by means of hypnotism. Appetite may be restored, pains which accompany various forms of dyspepsia removed, and in some cases even the dyspepsia itself may be cured. Constipation can be remedied by the suggestion that the patient's bowels should act at a given time; and in regard to diarrhœa, it too is often cured, unless it is caused by intestinal catarrh.

¹ *Psycho-Therapeutics*, p. 62. *Revue de l'Hypnotisme*, September 1888.

² *Suggestive Therapeutics*, p. 319.

Passing on to hysteria, we find that both hysterical men and women can be cured by hypnotism. It must, however, be mentioned that there is a difference of opinion to be met with among Continental writers upon the subject; but after careful examination of their opinions, it appears to me that the facts of the case may be summed up as follows:—Hysterical patients certainly run a chance of having their cases rendered worse instead of better by hypnotic procedure to a greater extent than any other class of patients, but at the same time it much depends on the methods employed in hypnotising them. If hypnotic suggestion, as practised by the Nancy School, is carried out pure and simple, and the patients are not used either for demonstration purposes or for the purposes of experiment, hypnotism benefits or cures them; but should they be hypnotised by fascination or Braidism, the state of matters is not favourable; and should they be used for demonstrations, it will be found that in many cases they sink into a hopelessly incurable condition. The greatest care has to be taken in treating such cases, and a considerable knowledge of the art of hypnotising should be obtained before venturing to utilize it in this class of affections. When hysterical patients, however, are carefully and judiciously hypnotised, it is found that in a great number of cases the results are very surprising. Often a single sitting is sufficient to cure the patient, though in very severe cases weeks and months may pass before permanent relief is obtained. Curiously enough, hysterical aphonia, which is as a rule cured after one or two sittings, proves sometimes very intractable, and I have seen cases which have not been cured for six or eight months.

It would take up too much space to relate details of cases in full, but I may append the headings of several of Bernheim's cases, to which readers may refer for full details.

Case 1.—Mrs X., 26, violent hysterical paroxysms, dating back one year. Complete cure from the time of first suggestion.¹ To this case the author adds: "Definite cure took place after the first séance. This is not usual; it is often necessary to follow up the disease for several weeks, in order to eradicate the symptoms and prevent the occurrence of relapses."

Case 2.—Hysteria, dating back fourteen months, convulsive crises, vomiting, sensitivo-sensorial hemianæsthesia, lameness caused by pain. Cure of the anæsthesia and lameness in a few days. Total cure in seven or eight weeks.

Case 3.—Hysteria, dating back fourteen months; convulsive paroxysms, pain, vertigo, and insomnia. Cured in thirty-five days by means of suggestion.

Case 4.—Hysteria, dating back seven or eight months; convulsive attacks, vomiting, insomnia. Cure after the first séance. Relapse at the end of three weeks. Crises, sensitivo-sensorial hemianæsthesia, pain. Symptoms (at first) resist suggestion. Cure in three weeks.

¹ *Suggestive Therapeutics*, Bernheim, p. 284, *et seq.*

Case 5.—Hysteria, dating back six weeks ; convulsive paroxysms, left sensitivo-sensorial hemianæsthesia, vomiting, pains. Immediate effects of suggestion. Reappearance of symptoms. Cure in six or eight weeks. Relapse in eight months. Cure in three weeks by suggestion.

Case 6.—Reappearance of hysteria eight months ago, in consequence of a miscarriage, with pelvic peritonitis ; sensitivo-sensorial hemianæsthesia, pain, globus, palpitation. Transient effect of suggestion at first. Complete cure in twelve days.

Van Renterghem and Van Eeden relate a case of intermittent fever, which had resisted for weeks both quinine and arsenic, cured by hypnotism (*Clinique de Psycho-Thérapie de Suggestive*, p. 91), and both these physicians, Liebault, and others, have cured inveterate smokers.

(To be continued.)

VII.—THE PHYSIOLOGY OF THE CELL CONSIDERED IN RELATION TO ITS PATHOLOGY.

By G. SIMS WOODHEAD, M.D., Superintendent of the Research Laboratory, Royal College of Physicians, Edinburgh ; and G. E. CARTWRIGHT WOOD, M.D., B.Sc.

IF a careful survey of the vast field of literature which deals with the subject of Pathology be made, we are at once confronted by the fact, that by far the greater part of our knowledge of the changes that occur in disease is of those histological differentiations which most frequently accompany it—that is, it is confined to the alteration of structure or anatomical changes in the cells which result from, or are associated with a morbid process. A further review of this literature, however, brings it home to us most forcibly, that these structural changes may, and usually do, manifest themselves only in the later stages of the disease, and are preceded by a condition where we have only perverted action of the cell, when the process is spoken of as purely functional in character. Of this perverted functional activity of the cell, which at first probably is only *molecular* in nature, and which precedes the grosser and later changes which may be regarded as the *molar* expression of the result of the earlier changes, we are at present almost entirely ignorant. By none has this been recognised more acutely and readily than by Virchow, the illustrious founder and advocate of the system of cellular pathology, who, whilst recognising our ignorance of the nature of the functional changes in diseased tissues, expresses the hope that the working out of Metschnikoff's phagocyte theory of immunity may ultimately lead to a more perfect knowledge of cell physiology. Whether this be the result of researches in connexion with Metschnikoff's theory or no, it must be evident that a study of the apparently slight but lasting constitutional changes which the sufferer from

one of the non-recurrent zymotic diseases undergoes, changes which render him for the future immune to this affection, must direct and compel our attention to those individual differences, either inherent or acquired, as regards liability to certain diseases, which we at present attempt to recognise as dependent on temperament or diathesis of the individual (terms which are used as cloaks to our ignorance). Such changes in the cells as those occurring after one attack of such a non-recurrent zymotic disease are precisely the same in character as those which are met with in different individuals, and depend upon functional changes, not necessarily qualitative, nay, probably frequently only quantitative in character, that have taken place in the cells of the individual. These modifications in the action of cells are, however, much more easily studied in the case of a microbe, with its comparatively simple protoplasmic structure, than in such a complex collection of cells and organs as that of the human or animal body. In the former we have the problem reduced to its simplest condition,—the change that occurs in a single cell; and we are thus able to estimate more minutely and accurately the effect of any single new factor in producing a modified action of the cell, and to observe the fixity of any new habit which may be formed.

Duclaux¹ has already shown how instructive the process of digestion in microbes in its relation to that of the higher animals is, and we propose here to consider briefly some of those points in the general physiology of these lower living organisms, which throw light, we think, on the cell theory as applied to higher animal forms as it is at present almost universally accepted. Let us for our present purposes define a cell as a molecular mechanism, which for the manifestation of its characteristic action requires only "energy." Until quite recently this energy of the cell protoplasm was usually regarded by chemists and physiologists as entirely dependent on combustion or direct oxidation, for which the presence of free oxygen is an essential requirement. As a result of Pasteur's researches on anærobiosis we must conclude that this is not necessarily the case, but that the protoplasm may depend on that energy which is set free when a complex organic compound is split up into simpler components, in which the chemical and molecular affinities are more perfectly satisfied, such resulting simpler chemical compounds being found to be more stable in character than those from which they were derived. Let us take as an example of what we mean the changes in the medium that are set up in the process of alcoholic fermentation. It is well known that during this process, which may take place most rapidly and most perfectly under conditions of anærobiosis, where oxygen is completely excluded, the yeasts split up sugar into alcohol and carbonic acid gas, and that as a result of this process of dissociation a very considerable amount of potential energy must be converted

¹ *Pasteur's Annals*, No. 3, page 97, 1889.

into kinetic. When we consider the condition of anærobiosis under which this occurs, it is evident that such conversion is due not to oxidation, but to simplification and re-arrangement in more stable forms of the molecules of which the sugar is built up, consisting in the carrying over of the oxygen from the hydrogen to the carbon atom, a process which we may term *internal* or *intra-molecular* oxidation. Hoppe Seyler,¹ taking the same general view, regards the peptonization of albumen as a splitting accompanied by hydration, and he holds that the conversion of starch into dextrose must be looked upon as the result of an essentially similar process. We may even go so far as to say that most of the changes that albuminoids undergo in the body may be regarded as the outcome of this same process of dissociation and hydration, as substances similar to the derived products may be produced artificially by hydration in the chemical laboratory.² Even the direct oxidations which such bodies as the carbohydrates undergo are apparently usually secondary to a splitting up into simpler compounds—compounds which are readily oxidizable. Under normal conditions, and in the laboratory, the organic bodies pass through these series of changes only when the temperature has been raised to that point at which their molecules tend to become separated, or are re-grouped so as to allow of the oxygen acting on them in their nascent and more simple new molecular form. In the animal body this dissociation is, with the aid of protoplasm, brought about at a much lower temperature. The oxidation of such molecules, then, does not appear to be a purely chemical or physical process comparable to what we can effect in our laboratory experiments. Pasteur, no doubt, suggested that the oxidation of alcohol by *mycoderma aceti* was of precisely the same nature as the oxidation of alcohol that takes place in the pores of spongy platinum. But Mayer has insisted on the fact that these two processes of oxidation have their maximum activity at different temperatures, so that we must suppose that the protoplasm and the platinum present the oxygen to the alcohol at different temperatures, no doubt, in each under the most favourable condition to bring about oxidation, the other conditions being also taken into consideration. Thus it is not at all improbable that just as the enzymes of different organisms act best at those temperatures to which they have been adapted, so the different organisms which set up acetification may have different optimum temperatures at which they act most energetically. The splitting up of organic bodies by the protoplasm also aids indirectly in the oxidation of other compounds, on which they do not act directly; for example, when a decomposition or dissociation takes place, one of the resulting simpler compounds usually has its oxygen affinities more fully satisfied than before, while the other, being not fully saturated

¹ *Pflüger's Archiv*, Band xii., S. 14, 1878.

² Schutzenberger, *Bulletin de la Soc. Chim. de Paris*, February and March, 1876.

with oxygen, may be directly oxidized, and it is quite conceivable that this latter may wrest one atom only of the molecule of oxygen presented to it, thus leaving a free atom which, combining with another molecule, may form ozone, or remaining free or nascent, most readily combines with other free bonds of incomplete molecules, and this active oxygen or ozone may be thus able to bring about the oxidation of bodies which are entirely unaffected by the molecule of oxygen in its fully satisfied form. From what we have said it may be gathered how all-important in the consideration of the question of the production and supply of energy we hold to be the way in which the protoplasm splits up a given body. Let us now see what may be gathered in connexion with this subject from the examination of the results of a series of experiments carried out to see whether the same protoplasm could, under different conditions, split up the same body in different ways. These experiments were successful, and from a study of the results obtained, it became evident that we had a basis on which to explain how the metabolism and metabolic processes and potentialities of an organism might undergo complete, if not radical change. These experiments were devised to show how protoplasm acts on albuminoid substances in the presence of oxygen, and when the supply of oxygen was entirely cut off. The compounds resulting from the decomposition of albuminoid bodies being, of course, of too complex a nature to readily lend themselves to direct investigation, we did not attempt to make analysis of these products resulting from the action of the protoplasm, but we took advantage of the fact that there was present in some cases, and absent in others, a very common by-product of these decompositions, H_2S , which was thus called in to act as an indicator as to whether the splitting up under the different conditions was identical or no. There can, of course, be no doubt that although we had, under certain conditions, sulphuretted hydrogen present in both cases, the products may have been essentially different; but it is equally certain that when different results as to the presence of sulphuretted hydrogen were obtained under two conditions, splitting up must have taken place in different ways.

In illustration of some of the points to which reference has been made, we may describe the results of a series of experiments on an organism which had been cultivated from intestinal contents. These results are most striking when read in connexion with what has already been said of the change of function of cells.

This microbe which appeared to be able to produce H_2S from almost all albuminoid bodies, is very probably the usual cause of this fermentation in the alimentary canal. All attempts to separate it by means of the ordinary gelatine plates directly from the fæces were ineffectual. When a tube of bouillon was inoculated with intestinal matter sulphuretted hydrogen was produced at once, but still no organism that induced this decomposition could be separated by the gelatine methods. The bouillon culture reinoculated from

bouillon to bouillon still continued to produce sulphuretted hydrogen. After the lapse of over three weeks plates were again made from this cultivation, and in those plates colonies of the organism were obtained, which as pure cultures produced sulphuretted hydrogen when grown in bouillon, but not in so large a quantity as when grown as impure cultures with other organisms. The explanation of the fact that we could not obtain the organism at once when cultivated from the fæces, we concluded must lie in the anærobic habit of the microbe, which had become developed during its existence in the intestine. We also thought that when grown as an impure culture in the bouillon, the other organisms probably taking up the oxygen present, offered favourable conditions for its growth, it being still unable to grow aerobically as a pure culture or colony on a gelatine plate. During the series of inoculations from bouillon to bouillon, the organism becoming less sensitive as regards the presence of oxygen, at length became able to grow in gelatine. The greater amount of sulphuretted hydrogen always produced in the impure culture is to be ascribed to partial anærobiosis, under which condition the microbe produces more of this gas. We shall have to consider, later, this relation of the microbe more fully. The following is a table of some of the sulphuretted hydrogen reactions of the microbe:—

Fæces Bacterium.	Ærobs.	Anærobs.
Egg yolk,	+	+
Egg white,	0 (?)	0 (?)
" " coagulated,	+	+
Bouillon,	+	+
Casein,	0	0

In this table sulphuretted hydrogen is always produced in the presence of oxygen if it is formed in its absence. In table No. 2 we give the results of a series of experiments with Koch's

	Cholera.	Finkler.	Miller.	Deneke.
Bouillon + air,	0	+	+	0
" - air,	+	+	+	+
Egg yolk + air,	+	+	+	+
" " - air,	+	+	+	+
Egg white + air,	0	0	0	0
" " - air,	+	0	0	0
Egg white boiled + air,	0	0	0	0
" " " - air,	+	+	+	+
Blood serum coagulated,	+	+	+	+

cholera bacillus, Finkler's, Miller's, and Deneke's bacilli. The + or 0 refers to the formation of sulphuretted hydrogen. In these tables no notice is taken of the quantities produced, although, without exception, relatively larger quantities were always produced when

the air was excluded. The fæces bacterium probably reacted in the same way under the two conditions, owing to its habit of taking its energy only by splitting the proteid molecules which it had acquired during its residence in the intestinal tract, having for the time being ousted the habit of obtaining it by oxidation, so that the products with and without oxygen were nearly alike. We have already stated that the organism appeared at first unable to grow in contact with the air, and only gradually acquired this capacity. Some seven months after the first experiments we had occasion to notice that this organism, which had been grown during this time aerobically, had lost in great part the capacity of producing sulphuretted hydrogen when grown in free contact with the air. It cannot be said that in any media it had completely lost this faculty of sulphuretted hydrogen production, but only that it required a much longer time to cause the blackening of the lead paper than previously, and that this blackening was very much less than one had been accustomed to observe. It would appear that the power of splitting the proteid molecule upon which the separation of H_2S depended had been in great part lost, owing to the organism having acquired the habit of obtaining its energy by oxidation. It may well have been that the course of the metabolism may not have been very dissimilar in the two cases, but that owing to this new source of energy being added to the organism, only relatively much smaller quantities of the medium would require to be split up, and accordingly much smaller quantities of H_2S would be set free. We have, however, already seen that the protoplasm has apparently the power of splitting up the same substance in different ways, and from this we should argue that it is improbable that the course of the metabolism which will be developed when exposed to the oxygen of the air will run precisely parallel, if at all, with that under anaërobiosis, and any deviation from this would tend to change the character of the organism as a whole. Indeed, as we have just seen, the development of the one adaptation here appears to replace the other partially or entirely. This need not, however, necessarily be the case; the two adaptations may remain perfectly distinct like the reverse sides of a coin, each lying latent in the protoplasm ready to come into action with proper environments and under appropriate conditions. In the plant we have an example of this in the changes that occur in the processes of metabolism during the day and during the night—the light in the former case, as is recognised by botanical physiologists, acting as a specific stimulus, calling certain powers into action. Similarly, it has been found that microbes can also become adapted to the light, as shown by the fact that one organism (Prove) may form a pigment only when exposed to light, another (Scholl) only in the dark. It must be supposed here that the specific metabolism on which the production of the pigment depends is brought into action only on a certain specific stimulus of the protoplasm. This production or non-

production of pigment may also be taken as a means of recognising the difference in the products of a microbe when air is present and when it is rigorously excluded. Almost all those organisms which produce a pigment when oxygen is present fail to produce it when grown anaerobically. Here it might be supposed that the pigment is an oxidation product, in which case it might then be expected that on the admission of oxygen the colour would immediately appear; but this has been shown to occur only in the case of one organism, which Miller¹ has described as producing a green pigment. When oxygen is excluded this colour is absent, but if air is allowed to enter, and the fluid in which the organism is cultivated is agitated, the green colour is at once produced. The metabolism here under the two conditions is evidently the same in both cases, and on the addition of oxygen we have the same product as if it had been grown under conditions of aërobiosis. In the case of other organisms grown anaerobically the contact with oxygen does not cause the appearance of the pigment. It may be suggested that the oxidation resulting in the pigment production may occur only when this substance meets in a nascent condition, as it were, with oxygen, and that if this is not present other combinations result, upon which the oxygen is, even when admitted afterwards, unable to act. We have been able to show that this is not the true explanation by some experiments with *micrococcus prodigiosus*. If this organism is grown anaerobically for some time,—a condition under which it is colourless,—when again cultivated with free exposure to the air, it grows without producing its characteristic pigment. This appears to us to indicate that the course of the metabolism under anaërobiosis was different, and that this habit persisted for a certain time even when the organism was again grown aerobically. It is, accordingly, more probable that the course of the metabolism under the two conditions is really different, a view again exemplified in the case of those organisms which produce their pigment only when oxygen is excluded. Thus Esmarch's *spirillum rubrum* and Holschewnikoff's sulphuretted hydrogen bacillus appear to produce their characteristic pigments only when grown anaerobically. These reactions are, however, most easily investigated by allowing organisms to grow on carbo-hydrates, under which conditions the products are very much simpler. Thus, Pasteur found that although *mycoderma vini* and certain *mucors* produced no alcohol from sugar when the air had free entrance, they set up a true alcoholic fermentation when air was excluded. We have observed a similar difference in the products of *M. prodigiosus* on sugar under similar conditions. Under aërobic conditions *M. prodigiosus* forms lactic acid, the sugar in this case being split up, probably according to the following formula— $C_6H_{12}O_6 = 2C_3H_6O_3$, no true fermentation in the old sense occurring, as no CO_2 is set free as a result of the reaction. If, however, air be excluded and growth takes place, there

¹ *Mikro-organismen der Mundhöhle*, Leipzig, 1889, page 272.

is production of a larger quantity of CO_2 with the decomposition of the same quantity of sugar. This appears to us to indicate that the protoplasm under such conditions, in virtue of its selective power, proceeds to split up the sugar in a different fashion, and CO_2 results. We hope later, by calculation of the quantity of CO_2 , and by investigation of the substances produced under the two sets of conditions, to determine more exactly the nature of the different reactions.

(To be continued.)

Part Second.

REVIEWS.

A Treatise on Gout. By Sir DYCE DUCKWORTH, M.D. Edin., M.D. (Hon. Causâ) Royal Univ. Ireland, Fellow and Treasurer of the Royal College of Physicians of London, Hon. Fellow of the King and Queen's College of Physicians in Ireland, Physician to, and Lecturer on Clinical Medicine in St Bartholomew's Hospital. London: Charles Griffin & Co.: 1889.

THE praise of gout cannot be said to rise naturally in the minds of those who inherit or acquire it; it has, notwithstanding, been set forth by writers at different periods of the world's history. The malady has been venerated on account of its antiquity, and has even been assumed, in a pedigree preserved at the English Herald's College, to have been the cause of death in the case of our original progenitor. Gout has, moreover, been lauded on account of its positive benefits, and this more particularly by a writer named Misaurus. This author regards the affection as a blessing sent from heaven for the purpose of lengthening human existence, and advances distinct reasons why it should be esteemed as a boon granted to mankind. Stated briefly, these reasons are: that gout gives pain without danger; that in the intervals of suffering the patient is able to realize thoroughly the pleasures of life; that the victim as a guide to the weather is superior to any kind of barometer, so that in the future no ship will ever be sent to sea without a gouty captain; that persons affected by gout are not subject to headache; that such persons are spared the attacks of fever; and, lastly, and most singular of all, that gout is not curable. The author to whom we have referred believes that, as a means of prolonging life, gout ought to be acquired, and, anticipating the argument that gouty people die like others, he remarks that some of them do not know when they are well off, and attempt to rid themselves of the very tendency which would preserve them.

Being in a special sense a disease of these islands, it is not surprising that gout has, from the days of Sydenham, received much attention from English physicians, and that our knowledge of its nature and treatment has been chiefly of native growth. Amongst

those who have in recent times devoted themselves to the study of this disease, Sir Dyce Duckworth stands prominently forward as the champion of certain views in regard to its pathogeny, and the medical profession will gladly hail the present work as coming from one whose views deservedly carry much weight on the subject. The work has made its appearance at an opportune moment. On the Continent, as well as in this country, a considerable amount of work has been given to the elucidation of the problems arising in connexion with gout and allied conditions. It is well that the results of all these labours should be gathered together in a systematic work, and fitting also that such a work should be written by the physician of a large hospital in the headquarters of the disease.

The author has produced a work remarkable at once for its completeness of design and lucidity of expression. Gout in all its multiform aspects is placed before us, treated with unity of purpose as well as mastery of detail; and yet the author does not claim to have produced an exhaustive work—he simply assumes the rôle of the physician, and his point of view is well stated in the preface, where in one trenchant passage he remarks,—“I am disposed, indeed, to think that medicine as an art is now in some danger of being lost amidst futile efforts to exalt it into an exact science. I maintain that a great physician is, and must be, a great artist.”

After devoting a few pages to the consideration of how gout may be defined, the author gives a succinct yet comprehensive survey of the different pathological doctrines which have been held regarding gout, and this is followed by an inquiry into the pathogeny of gout.

Sir Dyce Duckworth's views are too well known to need special statement in this place. While admitting the general truth of the axiom, “no uric acid—no gout,” he is certain that there may be much gout without any specific deposit in overt form. By close reasoning he has been led to conclude that the conditions generally recognised as of a gouty nature are primarily dependent upon a functional change in some part of the nervous system, and he thus regards gout as a primary neurosis. It is ten years since we read the paper in which the author unfolded his views, and our observations during this interval have strengthened the favourable opinion which we were at that time led to form of his theory. The pathological facts regarding all allied disorders form strong arguments in favour of a neurotic origin of gout, and the clinical features of the disease itself commend such a view to the thoughtful mind.

Like other neuroses, gout may be, on the one hand, primary or hereditary, and on the other secondary or acquired—in other words, the diathetic tendency may be inherited, or induced.

Space forbids us to follow the result of the author's teaching on the morbid anatomy and clinical features of gout. It may be said, however, that in addition to containing his mature opinions on the different aspects of the disease, the work is a storehouse of information on the views of almost all who have given attention to the subject.

There are many suggestive thoughts throughout the book. We

may, for instance, refer to a most interesting observation, that in ancient Greece and Italy, notwithstanding the good climate enjoyed by their inhabitants, gout was well known, whereas in modern times, with changed habits, the disease has disappeared. To us it is a significant fact that the disappearance of gout in these countries has been accompanied by a decadence in the intellectual vigour of their peoples.

The profession will, no doubt, receive Sir Dyce Duckworth's treatise with that respect which it assuredly merits, whether regarded as a valuable contribution to the scientific study of gout, or as a convenient repository of practical suggestions. We have had a genuine pleasure in perusing the work, and feel under a personal debt of gratitude to the author for the boon which he has conferred upon modern medicine by his labours.

Diseases of Women and Abdominal Surgery. By LAWSON TAIT, F.R.C.S. Edin. and Eng., LL.D. Vol. I. Leicester: Richardson & Co. Philadelphia: Lea Brothers. 1889.

MR LAWSON TAIT has played such a prominent part in almost all the gynæcological discussions—might we say warfares—of recent times, and is so eminently the exponent of what may be termed the new gynæcology, which the composite title of the work before us so tritely identifies, that the appearance of the present work will be welcomed by all, and being as it is largely a collated collection of his previous papers and scattered sayings, it will—to use an advertising phrase—“supply a felt want,” not only to the busy practitioner, but also to the not less busy specialist.

The author is one eminently endowed with the courage of his convictions, and writes in a terse and vigorous style, with an easy flow of diction bordering on the colloquial, which makes the book additionally attractive, and enhances the pleasure of its perusal. As a pronounced polemic he is well known to readers of current literature, and this feature of his temperament finds frequent display in the work before us. Truly his opponents must reckon on a swordsman whose blade is keen as a rapier and crashing as a claymore.

To come from the style of the book to its matter, we find at the very outset an instance of the author's originality. In place of a table of contents we have a “Table of the Organs concerned,” commencing with—I. Mons veneris; II. Vulva, with various sub-headings; III. Vagina, Urethra, and Bladder. The way in which the diseases of these parts is treated will, we are sure, come as a revelation to those who may only have known Mr Tait, or who may have systematically regarded him as an abdominal surgeon simply. Indeed, we may say that in no treatise with which we are acquainted are the diseases of the external organs dealt with in such an instructive fashion. As an indication of the valuable and practical style of treatment inculcated by the author, we would refer to the sections on Eczema and Pruritis, and would quote the following paragraph:—

"In one case in my practice, where the disease was probably the expression of some dyscrasy, such as chronic gout, it was completely cured by the insertion of a seton just above the groin; but when the seton was removed the disease returned. The patient greatly preferred the inconvenience of the seton to the misery of the eczema."

The methods of pelvic examination are dealt with in the chapter on the vagina; and referring to the bimanual examination, the writer states that it is but seldom that the occasion arises for the "employment of what is known as the bimanual method," and that "in the great majority of instances in the case of the experienced gynaecologist the use of this bimanual method is unnecessary." We venture to think that in this opinion the author will find few concurrences, and that of those who are acquainted with the value of the bimanual method there are few whose experience will either tempt them or warrant them to dispense with it as an aid to diagnosis.

At the conclusion of the section on bladder affections, the author refers to two curious cases which were "characterized by one symptom only—that of an extraordinary discharge of clear fluid from the vagina in quantities which were perfectly astounding." In the first case he traced this discharge to "two small apertures, one on each side of the urethra, which were doubtless remains of Gartner's canals," and expresses his belief that these apertures "have a direct communication with the cavity of the peritoneum, and that the fluid was probably the serum of that cavity." In one of the cases he opened the abdomen, under the impression that it was a case of hydrosalpinx. He says: "I looked all over the broad ligaments very carefully to see if I could discover any trace of a dilated Gartner's canal, but could not. Dr Roberts fully concurred, and, seeing nothing else to do, I removed both sets of uterine appendages as close to the uterus as I could tie them." This, however, did not remedy matters; and the subsequent history of the case as regards dates is rather vague, the conclusion being that the patient, a young married lady, expressed herself as being "enormously benefited by the arrest of menstruation," and the hydorrhœa ceased. The author's conclusion, as expressed in the following terms, is, we venture to think, open to some doubt:—"I am quite convinced," he says, "that the cure arrived at originated in the destruction of the broad ligaments, and the removal of the uterine appendages." To us this savours somewhat of the eulogies contained in the testimonials to the certain cures for consumption, etc.

The fourth section of the work is devoted to diseases of the uterus, and in it we see decided indications of what we would venture to suggest is one of Mr Tait's strong points—his shrewd Scotch common sense. The mass of faulty observations, and still more faulty treatment based thereon, which has accumulated around the os, the cervix, the endometrium and the position of the uterus, are brushed aside, and plain, straightforward descriptions and directions substituted.

Displacements, including prolapse and inversion, have less than a

dozen pages devoted to them, from which we would quote the following:—"It will be seen, therefore, that my views on uterine displacements have at least the merit of simplicity, and I am sure they have the still greater advantage of safety, for it is quite as important to avoid doing harm as to strive to do one's patient good; and the popular views on uterine displacements, combined with their routine treatment by pessaries, has of late years made me many times wish that pessaries had never been invented." Peri- and para-metritis have not the same amount of space devoted to them as is customary, and the reason for this is stated as follows:—"In the employment of the terms 'perimetritis' and 'parametritis,' as introduced by Virchow (who knew nothing about gynecology), and advocated by Matthews Duncan (who has never had his fingers inside the pelvis from above), we have introduced a wholesale confusion into gynecology which will take many years yet of industrious work to get right. This confusion has been vastly aided by Dr Emmett's teaching about 'cellulitis.' If 'parametritis' and 'pelvic cellulitis' be relegated to their proper place, and they may be taken to mean the same thing, it is one of the rare conditions we have to deal with among the special ailments of women."

On the other hand, there is a great deal more said of salpingitis, simple and suppurative, than is to be found in the older books, but we would prefer to leave the discussion of the relative importance and frequency of these various conditions to Mr Tait and the gentleman whom he so trenchantly criticises in the foregoing paragraph, and, as a contribution, we would relate the following experience:—About ten years ago the late Dr Angus Macdonald demonstrated at his clinique a case as being typical of parametritis. There was present one who had just come from Birmingham, and who is now one of the best known abdominal operators in America. He was asked to examine the case, and having done so, he remarked, "That's one of Lawson Tait's tube cases; I reckon they are full of pus, and the sooner you open her and take them out the better." Dr Macdonald was naturally rather staggered, and was hardly prepared to swallow his whole clinical demonstration and all his previous writings on the subject at one gulp. The patient was, consequently, treated in the ordinary way for parametritis as laid down by him at his lecture and in his writings, and she got quite well.

Contrary to what those would expect who assume that Mr Tait is a surgeon determined to operate at all hazards, we find him asserting his strong disapproval of the proposal to deal with cancer of the uterus by complete removal of the organ, and in this, we believe, he will find general support.

As might be expected, the subject of uterine myoma is dealt with fully and clearly. Mr Tait's views as to the management of those cases are well known to the profession, and the whole subject is at present occupying a prominent part in the professional mind. We would strongly advise all interested in the matter to carefully

consider Mr Tait's views on the natural history of uterine myomata, as without a definite knowledge of this, observations of cases and deductions made from their treatment are apt to be confused and faulty.

On the question of the causation and mechanism of menstruation, Mr Tait holds views so different from those usually promulgated, and we believe so very much misunderstood, that the statement of them, as contained in the present work, will be found specially acceptable. We will not here enter into the subject further than to say that he does not attach the importance to the Fallopian tubes as dominating menstruation which is usually supposed, and we would advise all interested in the subject to give this part of the book a careful perusal, especially as regards the causation of the condition known as infantile uterus, as he enters fully into the researches of Dr Arthur Johnstone on this question.

The present volume concludes with a section on Ectopic Pregnancy, which was recently published separately, and noticed in our pages. From the table of the organs concerned, we see that the following subjects have still to be dealt with in vol. ii.:—Ovaries, pelvic bones, liver and gall-bladder, kidneys, spleen, and pancreas, colon, rectum, sacrum, small intestines, and breast. We are sure that the appearance of this volume will be eagerly looked for, and we trust that it will not be long delayed.

On the Geographical Distribution of some Tropical Diseases and their Relation to Physical Phenomena. By R. W. FELKIN, M.D., F.R.S.E., F.R.G.S., Lecturer on Diseases of the Tropics and Climatology, School of Medicine, Edinburgh. Edinburgh and London: Young J. Pentland: 1889.

IN his introductory remarks, Dr Felkin states that his work is only a preliminary attempt to focus our present knowledge of the geographical distribution of some tropical diseases, and to indicate as far as possible the knowledge we at present possess of those physical phenomena which influence the production of these diseases and the area of their distribution. It is surprising that so little has hitherto been done in this direction, and the author's retrospect of the work of previous writers seems to show how meagre is the information that has been placed before the medical profession. In an empire on which the sun never sets, there ought to be exceptionally good facilities for the study of tropical diseases; and for the guidance, not only of the medical profession, but of the laity as well, it is surely a matter of some importance to have a connected statement on the subject. We need not say, then, that we heartily welcome Dr Felkin's labours in systematizing the facts as to tropical diseases.

The plan of the work is remarkable for its simplicity and thoroughness. The diseases treated of are malaria, dengue, cholera, yellow

fever, oriental boil, endemic hæmaturia, beri-beri, oriental plague, dysentery, leprosy, yaws, Madura foot, Barbados leg, guinea-worm, filaria sanguinis hominis, scurvy, and tropical abscess of the groin. Each disease has its name and synonyms mentioned, it is then defined, a brief description is given, and this is followed by an account of its geographical distribution and its relations to physical phenomena as affecting its causation, area, and epidemic spread.

We think that Dr Felkin has done well to make use of the definitions employed in Main's *Dictionary of Medicine*, because they are generally accepted by the medical profession.

The maps, showing geographical distribution, which accompany the work are of extreme value, as a glance serves to fix in the mind those regions which are subject to each of the diseases described; and when they are compared with the charts giving the rainfall and isoclinal lines, a great deal of useful information can be gathered with a small expenditure of energy.

The author's observations on geographical distribution are terse and succinct, conveying a maximum of information in a minimum of space. In his remarks he has embodied much that is of value, and here also he has carefully avoided padding.

In a great School of Medicine like that of Edinburgh, to which students flock from every quarter, and from which practitioners radiate to the ends of the earth, it would be little short of a disgrace if attention were not paid to the diseases of the tropics as well as to climatology. Fortunately the elastic system under which the School is conducted allows students the opportunity of acquiring knowledge on these important subjects. The present volume is in part the outcome of the author's teaching, and we consider that in giving the result of his work to the public he has conferred a benefit upon the profession for which he merits our cordial acknowledgment.

Medical and Surgical Memoirs, containing Investigations on the Geographical Distribution, Causes, Nature, Relations, and Treatment of Various Diseases. By JOSEPH JONES, M.D. Vol. III., in Two Parts, pp. 1540. Illustrated by 3 Chromo-lithographic Plates, 21 Maps and Charts, 22 extensive and elaborate Tables, and 17 Engravings. New Orleans, La.: Joseph Jones: 1890.

PROFESSOR JOSEPH JONES is a most prolific, laborious, and painstaking writer. We had occasion recently to review favourably the first two volumes of his great work, a work which deals with his professional investigations from 1855 to 1890. In this third volume, as Professor Jones states in his preface, he deals with "subjects of importance to the welfare and advancement of the human race, (which) are discussed in the order in which they have engaged the attention, and engrossed the physical and intellectual energies of the author in the discharge of his official duties, and in

the prosecution of his original investigations on the Natural History and Treatment of Disease and their relations to Soil, Waters, and Climate." The volumes before us embrace the observations made during the last decade—1880 to 1890 inclusive. We may say at once that this work will be of the greatest use, not only to the sanitarian, but to the practical physician. It is, however, impossible to review the work in detail, as it deals with an enormous mass of information, statistical and otherwise. In the first part yellow fever is dealt with exhaustively, and especial attention may be called to the author's conclusions that a rigid and effective quarantine can exclude the disease; but that the quarantine, to be effective, must embrace not only inspection and detention, but discharge of infected cargoes, thorough ventilation, fumigation, and disinfection by the recognised methods of sanitary science. The author shows that between the years 1853 to 1855 New Orleans lost 12,780 of her citizens by yellow fever and *exotic imported disease*, and in 1878 4056 individuals and fifteen million dollars.

One interesting and valuable table is given, presenting the comparative symptomatology and comparative anatomy and pathology of malarial and yellow fever, which the author bases upon twenty-five years' investigations. This occupies forty-four pages of the first part, and is well worth the study of all who come in contact with these diseases.

Professor Jones also deals at great length with small-pox and vaccination; and in these days, when the utility of vaccination is called so seriously in question, the author's investigations on the subject, upholding vaccination as they do, deserve the greatest consideration. Dr Jones says,—“Good physicians and wise legislators should guard the public welfare from the disastrous and murderous effects of the silly reasoning of illogical detractors, the exaggerated fears of the timid, or the subtle insinuations of selfish quackery.” But he takes care to add a warning,—“The vaccinator should at all times and under all circumstances retain a due sense of the responsibility which attaches to the act of vaccination, as well as to all others of a professional character.”

With regard to the second part of the third volume, it consists of a series of monographs relating chiefly to medical education, teratology, nervous diseases, insanity, public and international hygiene, progress of the discovery of disinfectants and their application to the arrest of contagion, and a history of maritime hygiene as applied to the great naval Powers.

The maps, charts, and plans which illustrate this work are excellent, and will, we fully believe, as the author claims for them, “prove of lasting value to the students of medicine, hygiene, agriculture, commerce, climatology, and political economy of this (United States) and other countries.” They illustrate the topography and settlement of the delta of the Mississippi valley and the progressive development of New Orleans, as well as the medical

topography of Louisiana and its geological and botanical characteristics. It is, perhaps, ungenerous to criticise the typography of a work like this, yet we must say that the small type is trying to read, and that it might, perhaps, have been better had the maps and tabular matter been placed in pockets or published separately, as the volumes are rather unwieldy, and the binding is not worthy of the contents.

1. *A Manual of Nursing, Medical and Surgical.* By LAURENCE HUMPHREY, M.A., M.B., M.R.C.S., etc. With numerous Illustrations. London: Charles Griffin & Co.: 1889.
2. *A Manual of Nursing, Medical and Surgical.* By CHARLES J. CULLINGWORTH, M.D., F.R.C.P. Lond., etc. Third Edition, revised. London: J. & A. Churchill: 1889.

ONE of the chief features in this latter half of the nineteenth century, when looked upon from the later days of the twentieth, will be the avatar of the trained nurse. Florence Nightingale and Dickens, religion and medical common sense, must each and all be credited with the change which has gradually been effected. The willing but purposeless and often ignorant relatives, the coarse and brutal hired charwoman, have in serious illness gradually been superseded. Doubtless the objectionable "young person" who knows how clever she is, and wants to supersede the doctor, may now and then be seen; but, on the whole, a very large number of capable, decent, fairly-educated women have adopted nursing as a profession, and have been trained for better or worse in its mysteries. Granted a capable, good-hearted, clever woman, strong and willing to begin with, the training will be easy, and experience will make perfect, while for others no amount of training, however excellent, will be of any use. Training, though it should be chiefly practical, implies a certain amount of book-learning as to the bodily frame and its diseases; hence the perfect shower of manuals for nurses that has flooded the book market. They are of all kinds. Some give detailed information on many a subject with which a nurse has nothing to do; others try to give her an intelligent interest in her work, by telling her just enough to make her understand general principles of surgery and the broader facts of medicine. The books at the head of this page are both excellent in their way. Mr Humphrey's is the larger and more complete—probably for most nurses is redundant. Mr Cullingworth's is shorter, but simple and easily read. Both give instruction in points with which a nurse who has a doctor at her back has nothing to do with, and thus expose the "young person" to the gravest risk of indulging in her worst faults—diagnosing and prescribing. They will help the good, sensible nurse, and do her no harm.

Anæsthetics, Ancient and Modern. By GEORGE FOY, F.R.C.S.
London: Baillière, Tindall, & Cox: 1889.

THE author has been well advised to reissue his articles to the *Dublin Journal of Medical Sciences* in their present form. They are not only a valuable addition to the literature of anæsthesia, but have a flavour of old-world learning and investigation that makes them most pleasant reading. Perhaps the pleasure is augmented by the fact that the author's conclusions and teachings correspond with the doctrines of the Edinburgh School in regard to the choice of chloroform and ether. Naturally the consideration of the mode of action, administration, and dangers of these two occupies a large portion of the volume, but other anæsthetics are by no means neglected, though the advocates of some may think them rather meagrely dealt with. Cocaine is discussed in two chapters. Regarding bichloride of methylene the favourable opinions of Dr B. W. Richardson and Sir T. Spencer Wells are put against the unfavourable one of Dr Dudley Buxton. Its disadvantages seem to be its great cost and doubtful purity. Dichloride of ethidene, which was so strongly recommended by the British Medical Association of 1880, is dismissed within the limits of a single page as an anæsthetic which has never come into general use.

As between chloroform and ether, Mr Foy states his decided preference for the former. He believes it to be the most generally useful of the anæsthetics, and quotes in support of his views the recommendations of the Royal Medico-Chirurgical Society Committee of 1864 and the report of the Hyderabad Commission, as well as the published writings of some of the most distinguished American surgeons, of whom we may mention Dr Hunter M'Guire and Dr J. J. Chisholm. It seems doubtful whether ether is really so much safer than chloroform as its advocates would have us believe. Ether has many more limitations, and appears to be more liable to be followed by visceral troubles, while some of the statistics of chloro-narcosis mortality are, without doubt, greatly exaggerated. One calculation puts it as high as 1 in 525 administrations; but against this are to be put the statistics collected by Dr Chisholm, in which there were 43 deaths in 300,000 administrations. It is not improbable that some of these 43 were due to carelessness or ignorance on the part of the administrators.

In the final chapter there are some very important rules for the administration of anæsthetics. Illustrations of special inhalers and apparatus are given. The author declares his preference for the "open" method, using a piece of flannel stretched on wire over the face. In the treatment of imminent death we should have liked had a little more prominence been given to artificial respiration.

The Natural History of Cow-pox and Vaccinal Syphilis. By CHARLES CREIGHTON, M.D. London: Cassell & Company: 1887.

"Vaccination." Article in the *Encyclopædia Britannica*, Ninth Edition, Vol. XXIV. By the same Author.

Jenner and Vaccination: A Strange Chapter of Medical History. By the same Author. London: Swan Sonnenschein & Co.: 1889.

(Continued from page 667.)

FOLLOWING Dr Creighton in his relation of some of the bad results obtained by the early vaccinators, the observations which I have already made continue applicable. Indeed, in Jenner's early practice we find pretty much what might be expected if his early procedure (before he had discovered the "golden rule") were adopted by any one in the present day. To begin with, the best lymph direct from the cow is apt to produce a more severe disease than humanized lymph, the effects on the arm being relative to the soil on which it had been raised. Next, the filth, the pus, the decomposing blood, the ichorous discharge from neighbouring ulcers on indurated bases, were so intimately mixed up with the liquid lymph itself, or with what had been liquid lymph but had dried into a crust, that the disease produced could not but have characters which were the compound effect of a compound cause. Nor is it surprising that such characters were not got rid of at the first or second remove. Then we have the late period at which the lymph was taken. In Darke's cases, specially referred to by Dr Creighton as being of great severity, we find that the lymph used had been taken on the *twelfth* day from a vesicle, as to which Dr Creighton himself tells us "the areola was out, and there were a number of very minute confluent pustules round the big cow-pox vesicle." In another example, "with matter taken on the *twelfth* day Jenner inoculated Mary Hearn," the consequence being "an areola on the fourteenth day and an ulcerous state of the arm for some time after" (p. 93, *Jenner and Vaccination*). Again, Dr Creighton enlarges on "Thornton's experience." That practitioner found a milker with sores on his hands, one of which "was still in the unbroken form of a pock," all the others having degenerated into sordid and painful ulcers, though only five days had elapsed since the vesicles first appeared. [In passing, I cannot avoid pointing out once more how such a narrative, on the very face of it, is at variance with Dr Creighton's theories. The milker's ulcers, he tells us, were a late stage of the long cycle of untamed cow-pox, and were representative of the same stage on the cow's teats, that stage being itself analogous to the true syphilitic ulcer, with indurated base, hard edges, etc. But here we have the "sordid and painful ulcers" within *five days* of the first appearance of the vesicular stage. Surely that was not a long cycle, and surely the ulceration is abundantly explained by the fact

that the vesicles occurred on the hands of men engaged in such daily manual toil as falls to the lot of general servants on a farm. But to resume.] From this vesicle a Mr Stanton and four children were inoculated, and "on the third day the arms of the four children were affected with a kind of erysipelatous efflorescence above the point of insertion," and, finally, all the children were inoculated with small-pox, and all took the disease. Such is Dr Creighton's version. But on turning to the original we find two differences, which, had they been discovered by Dr Creighton in any narrative of Jenner's, would have probably evoked a protest against "editing." In the first place, Thornton describes the matter used as "purulent,"—a most pertinent fact in the estimation of ordinary readers. And in the second place, not four children, but only one, had erysipelatous symptoms. Thornton's words are—"On the third day all their arms appeared to be under the influence of a very active virus; the arm of the youngest child was affected with a kind of erysipelatous inflammation, the size of a half-crown piece, without any elevation of the cuticle." And, finally, as to subsequent variolation proving successful in cases which had shown such early local symptoms, the experience of Woodville may be quoted (p. 34, *Observations on the Cow-pox*). "When a considerable tumour and an extensive redness take place at the inoculated [*i.e.*, vaccinated] part within two or three days after the infectious matter has been applied, the failure of inoculation [vaccination] may be considered as certain as where neither redness nor tumour is the consequence. This rapid and premature advancement of the inflammation will always be sufficient to prevent the inoculator from mistaking such cases for those of efficient inoculation."

Leaving Jenner's practice, we turn to Bousquet's experiences with lymph from the Passy cow (1836), which are also cited by Dr Creighton as evidence of the great severity of the results of primary lymph, and of its consequent analogy to the virus of syphilis. Very opportunely, Professor Crookshank has included in his work just published (in November 1889, though the preface is dated April 1889), a translation of part of Bousquet's paper. Dr Creighton mentions that the "inoculations were made from the milker's vesicles or pustules, which were large, semiglobular, yellowish blebs, without central depression." Their diameter, Bousquet says, was "three or four lines," they were "well circumscribed," and regarding the fact that they did not resemble the vaccinal eruption, he points out that "these differences were naturally explained by the advanced state of the vesicles." Further, when we come to the condition of the matter used for vaccination (a point not referred to by Dr Creighton), we need have no difficulty in accounting for some severity of symptoms: "On puncturing the vesicles with a lancet, thick, white, purulent matter escaped, as if it were an abscess discharging;" and further, "it was none too soon;

in a few hours all chance would have been lost." Regarding the choice of lymph, Bousquet held that even when from the 10th to the 12th day, "the areola was large and vivid," and "the subjacent tissue much infiltrated," and "the lymph beginning to be turbid," yet "it is none the less suitable for inoculation." Does it need a new doctrine of cow-pox to explain that an operator holding such opinions should occasionally find in his practice inflammation and ulcers? But withal, the general impression produced by reading Bousquet is hardly that his observations "are in close agreement with those made by . . . Ceely two or three years after," as Dr Creighton thinks. Bousquet's average results seem to have been milder than Ceely's, even though, in one particular case vaccinated in three places by another practitioner, the violence of the inflammation explained to him "*les frayeurs de Jenner*." The same remark applies to Estlin's Bristol experience, which our author brackets with Ceely's; and in Estlin's case, too, there is the relevant fact, already noted (and included in Dr Creighton's synopsis),¹ that his stock of lymph was taken on the eleventh day from the arm of a child that had been domestically inoculated from a milker's hand.

In addition to what I have already urged in opposition to Dr Creighton's views on cow-pox and syphilis, I have now to call attention to his references to that outbreak of vaccinal syphilis which is best known in this country, and the report of which, by Mr Jonathan Hutchinson, did most to arouse the attention of the profession to the possibility of syphilitic infection by means of the vaccine lancet. Dr Creighton's account of these cases, which occurred in London in 1871, is as follows:—

"In the first series, twelve persons were successfully vaccinated with lymph taken on the eighth day from a specially healthy-looking child with five good vesicles. When this child was examined two months after, it was found to have correct scars; but it had five small condylomata *circa anum*. There was no imputation on the soundness of its parents. Of the twelve persons successfully vaccinated from the child's arm (most of them in three places, some in four), the first two had no ill effects, but in each of the remaining ten the scars broke out after having come to rest in the correct manner, and in the eighth week presented the appearance of indurated chancres. Under mercurial treatment the induration soon became soft, and the sores healed. Besides headache in some, there was hardly any constitutional disturbance while the sores were present; only two (Nos. 4 and 5) had ulcerated tonsils, and not more than half had a well-marked secondary eruption on the skin."

¹ But Dr Creighton says Estlin used the lymph the same day on which he took it, while Estlin merely states that, after his return from the farm where the disease existed to Bristol, he began operations "as soon as practicable," having first called in the assistance of two experienced vaccinators.

Dr Creighton holds that these cases were not syphilitic at all; they were simply a reversion to the untamed cow-pox. Taking his own synopsis of the facts, I have to ask special attention to this sentence referring to the vaccinifer,—“When this child was examined two months after, it was found to have correct scars; but it had five small condylomata *circa anum*.” This statement is nothing less than destructive of Dr Creighton’s position. He continually asserts, as I have already over and over again mentioned, that in such cases there is a return to the original local characters of cow-pox—to a prolonged cycle of inflammation, ulceration, etc. The secondary symptoms, he urges, are relative not to syphilis, but to this specific cow disease, whose primary appearances are local induration, severity, delayed healing, etc. But in this child the vaccination pursued its ordinary career. There was no return to an aboriginal condition. Its course locally was normal throughout. *And yet the secondary symptoms followed.* There were secondaries without any primary! The remorseless manner in which Dr Creighton’s theory of unconscious memory drags him from paradox to paradox could have no better illustration.

This brings us to the argument from the statistics of syphilis, to which Dr Creighton devotes Chapter IX. of “Cow-pox and Vaccinal Syphilis.” He gives a table headed “Increasing Infantine Death-rate from Syphilis,” and showing how from 1847 till 1884 the number of deaths (which he sets down, by mistake, as death-rates) under one year increased, in England and Wales, from 255 in 1847 to 1733 in 1884. He makes a special point of the fact that the Compulsory Vaccination Act came into force in 1853, and that in the table the greatest proportional increase in infantile syphilis was in 1854. But in a valuable article in the *National Review* of June 1889 Mr Preston-Thomas replies:—“The rise between 1853 and 1854 is easily explicable. In the analysis of the death certificates of 1854 (as will be seen on examination of the Registrar-General’s reports) a new plan of tabulation was adopted, as the result of the Statistical Congress which had been recently held at Brussels; and a large number of deaths, which had before been unclassified, now began to be relegated to particular diseases. Thus we find that the deaths under the heading ‘causes not specified,’ which had been 6900 in 1853, declined to 5663 in 1854, and that the difference of 1237 was distributed over different headings. It was in this way that the figures in the column for ‘syphilis’ were swollen.” As to the gradual rise in infantile syphilis exhibited in the table, the figures on which it is founded form a favourite anti-vaccination argument. But they are usually given alongside of other columns showing the corresponding “public vaccinations” performed in England and Wales. I need not give the figures here, but, as I have said elsewhere, taking the years 1852 to 1882 (with the exception of 1872–3, which for certain reasons are not comparable), and comparing each year with its predecessor, “it will be

found that on twelve occasions an upward or downward movement of vaccination was accompanied by a movement of similar direction on the part of syphilis, and that on seventeen occasions the reverse was the case—that when vaccinations rose syphilis fell, and that when vaccinations fell syphilis rose.”¹

In *Vaccination Vindicated* (pp. 136–8), and recently in the *Lancet*, I have proved from the Registrar-General’s figures—(1), that in Scotland no less than 65 per cent. of the deaths from syphilis at all ages take place before the age of vaccination, and that in the second half-year of life, or immediately following vaccination, the deaths fall to 11·6 per cent., or less than one-fifth of those in the prevaccination half-year; (2), that the figures for England are almost identical, and therefore that the earlier performance of vaccination in England than in Scotland has no effect whatever on the comparative infantile mortality from syphilis in the two countries; and (3), that while the percentage under one year of age of the syphilis deaths at all ages has increased from 70 previous to compulsory vaccination to 77 since compulsory vaccination, the whole excess of 7 per cent. is accounted for by infants under three months of age—the three months of non-vaccination. I then proceed as follows (p. 139):—“What, then, is the meaning of the increased registration of syphilis as a cause of death? In elucidation of this question I have to point out that there is one other period of life besides infancy in which deaths from syphilis show a great proportional increase. That period is advancing age. If we divide life into three epochs—(1) childhood, (2) adult life up to 55 years, and (3) all ages over 55—we find that while in the last period the total syphilitic mortality is much smaller than in the others, yet in the last, as in the first period, deaths from syphilis have considerably increased. Obviously, vaccination can have nothing to do with this. And there is only one answer that will satisfy all the facts of the case—namely, that the change to a very large extent depends on improved knowledge of the disease by medical men. It is, again, a question of diagnosis. The symptoms of primary and secondary syphilis in young adults were about as well known thirty years ago as they are now; not so the manifestations of congenital syphilis in children and the obscure tertiary affections of later life. One of the commonest results of congenital syphilis is premature birth. That fact is better understood than formerly, and some fraction of the enormous decrease (from 1043 per million in 1850–4, to 476 per million in 1875–9) in deaths registered from this cause is doubtless due to the substitution of the term syphilis. So, too, congenital syphilis may cause brain disease ending in convulsions; and here, again, part of the diminution consists of a transference of deaths from convulsions to syphilis. These views are in exact accord with what we have already discovered—that it is in the first three months of life that the great bulk of increase has appeared.”

¹ *English Mechanic*, 7th December 1888.

Let us suppose now, for a moment, that Dr Creighton, instead of finding an analogy between cow-pox and syphilis, had found it between small-pox and syphilis. If he had suspected that inoculated small-pox, and not inoculated cow-pox, had its parallel in great-pox, would it have been possible for him, by research into the writings of the old small-pox inoculators, to have got any facts in support of his theory? In the history of inoculated small-pox could he have discovered any occurrences which might have been described as results of unconscious memory—as reversions to an untamed condition exhibiting great severity of symptoms? Let us try.

As I have already mentioned, Woodville cites Dimsdale as the authority whose method of inoculation, introduced long previously, had by its inherent value held its own even to Woodville's day. Turning to Dimsdale, I find the following:—

(1.) “. . . there are some cases wherein the incisions continue to discharge a purulent matter longer” (p. 41).

(2.) “Another deviation, of still more consequence, which sometimes happens towards the end of the eruption, and is often, though not always, accompanied by great sickness, is an erysipelatous efflorescence” (p. 43).

(3.) “Another irregularity, deserving notice here, is that sometimes, upon the abatement of the fever and other symptoms, after the appearance of several pustules, and when the eruptive stage of the disease seems completed, it nevertheless happens that fresh eruptions come out, and continue doing so daily, for four, five, or even six days successively” (p. 51).

(4.) “Every one who has had any share in this practice according to the common or old methods will allow, that after passing through the disease in a very favourable manner, their patients (children especially) were frequently liable to abscesses in the axilla and other parts, tedious ophthalmies, and troublesome ulcerations in the place of insertion” (p. 56).

(5.) “In a few instances also there has been a slough in the incised part” (p. 57).

Take, again, Dr Gatti's book, as translated by Dr Maty:¹ “In the usual method . . . the humor . . . necessarily brings on an ulcer. This must be dressed for a fortnight at least; and whilst the principal disorder employs the inoculator but two or three days, the incisions require his attendance for several weeks. Thus a complaint is produced, both tedious and painful; . . . It even happens that the ulcer will not heal up, but grows so deep and foul that the surgeon cannot conquer it in many months; and the patient must suffer a thousand times more from this than from the small-pox itself. It is well known that sometimes inoculation leaves other bad remains—such as erysipelas, tumours, and abscesses, which are very troublesome, and may

¹ *New Observations on Inoculation*. London, 1768.

become fatal." Here we have deep and foul, slow-healing ulcers, tumours, abscesses, and erysipelas—all as in cow-pox. It is true that in accounting for them Gatti says, "You must take in the effects of the thread and of the putrid matter itself, not merely as conveying the infection, but as extraneous and offensive bodies; and to these are to be added the action of the plaster and of the air. These last causes may produce an inflammation . . . which often becomes erysipelatous, as in any other wound covered with a greasy plaster." But to all this it might be replied, in Dr Creighton's words (p. 103), "We need have no hesitation in dismissing the theory, which can always be plausibly urged for apologetic purposes, that the erysipelas of vaccination [inoculation] is owing to foul lancets or extraneous infection introduced," and (p. 166) that "the explanation [by Gatti] is, of course, *sophistical*."

There is another very singular feature in Dr Creighton's writings to which I must call attention. His promulgation of the doctrine as to the resemblance between cow-pox and great-pox lays him open to charges almost exactly similar to those which he launches against Jenner for *his* belief in the resemblance between cow-pox and small-pox. I will endeavour to illustrate this by parallel columns:—

"One can readily understand Jesty, the Dorset farmer, being misled by the similarity of names [cow-pox and small-pox], and by superficial aspects of diseased processes.

One can with difficulty understand Dr Creighton, an able pathologist, being misled by the similarity of names, great-pox and cow-pox, and by superficial aspects of diseased processes, as ulcers, etc.

"While Jenner's prosaic medical neighbour saw no point of contact between cow-pox and small-pox, and while they gave due heed to the abundant experience that cow-poxed milkers had not escaped the common epidemic of the time, Jenner persuaded himself that the one kind of pox was somehow related to the other, that there was a scientific or pathological basis for the rumoured antagonism between them, and that the cases of small-pox in previously cow-poxed milkers must have been exceptions, which he would one day be able to account for.

While Dr Creighton's prosaic medical neighbours saw no point of contact between cow-pox and great-pox, and while they gave due heed to the abundant experience that vaccinated children had not been, through their cow-pox, attacked by the common venereal disease of the time, Dr Creighton persuaded himself that the one kind of pox was somehow related to the other, that there was a scientific or pathological basis for the parallelism which he alleged to exist between them, and that many cases of syphilis in previously cow-poxed children must have been occurrences which could only be accounted for in this way.

"It is difficult to acquit Jenner of recklessness, or of culpable laxity, even in the very inception of his idea. There is just one thing that may be pleaded as having misled him in an excusable way, and that is the form of vesicle which cow-pox assumes in the

It is difficult to acquit Dr Creighton of recklessness, or of culpable laxity, even in the very inception of his idea. There is just one thing that may be pleaded as having misled him in an excusable way, and that is the form of ulcer which cow-pox often assumes

first few days of its development on the milker's hand. We know now, since the experiments of Ricord, Henry Lee, and others, that a sore of the pox proper, or of syphilis, when inoculated on the skin begins in the same kind of whitish vesicle as the milker's cow-pox, and that the classical pox and the cow-pox are in that as in other respects closely parallel."

after the first days of its development on the milker's hand. We know now, since the experiments of Ricord, Henry Lee, and others, that a sore of the pox proper, or of syphilis, when inoculated on the skin, develops into an ulcer with indurated base and raised edges not unlike that which, owing to dirt, to exposure, and to the mobility of the parts, often occurs in milker's cow-pox, though the classical pox and the cow-pox are not in any essential respects at all parallel.

In view of these "parallel readings" may we not now form the opinion that Dr Creighton belongs to the class of people described in Hudibras, who

"Compound for sins they are inclined to,
By damning those they have no mind to."

JOHN C. M'VAIL

(To be continued.)

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXIX.—MEETING IV.

Wednesday, 15th January 1890.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. EXHIBITION OF SPECIMENS.

1. *Dr William Russell* exhibited—(1.) Two specimens of CARCINOMA OF THE STOMACH—one from a man æt. 71, the other from a woman æt. 80—in neither of whom had there been any symptoms referable to the stomach. In the first case the patient died suddenly, and the stomach was found distended with recent blood-clot. In the first the carcinoma was in the lesser curvature, in the second it surrounded the pylorus, and in both cases there was ulceration. (2.) A specimen of NECROTIC PNEUMONIA, from one of two similar cases which he had examined in the Royal Infirmary the preceding day, and which he suggested were related to the special type of poison which was prevalent at the present time.

2. *Dr Alexander Bruce* exhibited a drawing of an ANEURISM of the lower part of the THORACIC AORTA, with FALSE ANEURISM OF LUNG.

II. ORIGINAL COMMUNICATIONS.

1. *Dr Scott Lang* read a paper on the LATERAL CURVATURE OF THE SPINE, ITS PATHOLOGY AND TREATMENT.

The President thought Dr Scott Lang had no need to apologise for bringing before the Society his ideas in regard to a condition that often caused considerable trouble to practitioners. He (Professor Simpson) believed that Dr Lang was correct in attributing the deformity to muscular action; and many years ago he had seen good results from exercising with machines which called into fuller play the muscles of the left side attached to the concavity of the dorsal scoliosis. In treatment it was important to keep in view also the constitutional condition, as many of the affected individuals belonged to families with a strumous diathesis.

Dr Hughes disagreed with the theory that the serratus magnus could have much action in producing lateral curvature due to its action on the ribs, as it could only act on the ribs when the shoulder was fixed; and as the muscles were better developed in the male, it would tend to the greater frequency of lateral curvature in the male than in the female, which was not the case. Dr Scott Lang had stated that he could not recommend Mr Barwell's bandages as an efficient means of treatment. In answer to this, Dr Hughes thought it was unfair from a single trial to disapprove of what had proved of great service in a large number of cases in Mr Barwell's hands.

Dr Black wished to ask if the lateral curvatures of spinal deformity had any effect in modifying the natural antero posterior curves, as if not, the spinal column would have a spiral form.

Dr Troup remarked that he happened to know a family of young ladies who never had been allowed to wear stays. One of them had developed this right lateral deviation of the spine, so that it could not be the wearing of these appliances which helped to cause the deformity by restraining abdominal breathing.

Mr F. M. Caird expressed the pleasure with which he had listened to Dr Scott Lang's paper, but he doubted if the extremely ingenious theory which gave such a prominent place to the action of the serratus magnus as a factor in causing scoliosis was an adequate explanation. One might expect in that case to meet with scoliosis when there was paralysis of the serratus. He agreed with Dr Scott Lang that the *tips* of the spinous processes did often curve towards the bodies of the vertebrae. Surgeons were tolerably well agreed that a loss of muscular tone started scoliosis, and hence the general treatment was one in which attention was mainly directed to strengthening the muscles and nerves. For this purpose appropriate calisthenic exercises did what was necessary, while jackets and spinal apparatus would most likely do harm, unless they were suitably used as adjuncts to give supports after exercise. They could not take the place of such exercises. It was always necessary to increase the capacity of the chest and promote the general health, hence one could not advocate any fixation of the arms.

Dr Scott Lang, replying, thanked the gentlemen who had given

him the benefit of their views. He admitted the correctness of the President's remark. In reply to Dr Hughes, he pointed out that the serratus magnus could not act unless the scapula was held fixed. The serratus magnus acted in conjunction with the trapezius and the rhomboids. He wished to know Dr Hughes' authority for the statement that the shoulders were more fixed in man than in woman. The theory, however, was not dependent on any vague statement of this kind, but upon the fact that the *breathing was more thoracic in woman than in man*. Dr Hughes altogether avoided the question of the production and the *raison d'être* of the so-called natural curves of the spine. If Dr Hughes wished to argue in favour of spinal supports as curative agents, he ought to have due regard to the pathological anatomy as it had been demonstrated. Dr Hughes, however, avoided such facts. Replying to Dr Black, the antero-posterior curves were doubtless somewhat modified, but these curves naturally varied considerably in healthy individuals. Mr Caird had not ventured to suggest any other theory as to why the complaint occurred almost exclusively in women. The spinous processes are not turned towards the convexity in the whole extent of the curve, but only at the most extreme part. He was very thankful to Mr Caird for his valuable suggestions regarding rest to muscles, also as to whether it was justifiable to restrain the action of muscles apparently too strong. The latter plan of treatment should, of course, only be used in the most cautious manner. Regarding cases of paralysis of the serratus magnus, it would be very interesting to follow out such cases; and he remembered one which Mr Caird had shown to the Society some months ago. There was no getting away from the fact that the bones were formed in accordance with the muscles acting upon them; consequently, if the skeleton of the thorax showed no atrophy of ribs on one side, we would be justified in disbelieving that paralysis of the serratus magnus had existed. Replying to Dr Troup, he suggested that the ladies in question, although not wearing stays, perhaps wore some band or other apparatus having a similar effect. Ladies must wear a waistband to support their dresses, petticoats, etc.; but the theory was not upset by the cases alluded to. The question was not whether Miss So-and-so wore stays or waistbands, but *Was the breathing more thoracic in woman than in man?* Dr Troup would not venture to deny this physiological fact, upon which the theory rests. In view of all the facts, it therefore seemed probable that the ladies alluded to by Dr Troup would be worse than they were if they laced tightly, or did anything to make the thoracic character of their breathing more pronounced. On the whole question, he did not see that there was a link in the chain wanting. The foundation of it existed in the correlation of structure—that every part of our bodies was developed and moulded in accordance with the forces acting upon it, the functions required of it, and the structures in relation to it. Leaving aside for the moment

the force of *heredity*, they had thus in the *environment* an explanation of everything in anatomy or pathological anatomy, from such a question as why the lion was tawny down to the question of why the skin was thick on the soles of our feet. It was all a question of development. The spine had its "natural" curves simply because it could perform its functions best with those curves. They were developed after birth in relation to the forces acting upon the spine. To this same principle he looked for the explanation of the pathological changes visible in the specimen of lateral curvature shown to-night.

2. *Dr James Ritchie* read his NOTES OF A CASE OF CARCINOMA OF THE SUPRA-RENAL CAPSULES AND LUNGS, and *Dr Alex. Bruce* described the pathological conditions, demonstrating them by means of diagrams and microscopical sections. These communications will appear in a future number of this Journal.

Dr Black concurred with the author in the explanation of the double character of the carcinomatous deposits, that the post-mortem appearances as seen were of secondary nature, and that the interest of the case was enhanced by the non-discovery of a probably single origin of the disease in other parts of the digestive system unexamined.

Dr Wm. Russell was inclined to regard the case as one of primary carcinoma of the supra-renal capsules, the lung implication being secondary. He had found carcinoma of the capsules more common than was generally recognised, and the mode in which the process in the lung had extended from the root tended to indicate that the disease there was secondary, and probably the result of lymphatic infection. As to the absence of discoloration of the skin, the view that its absence was due to the incomplete destruction of the glands was disproved by the fact that in recorded cases where they were completely destroyed by malignant growth there was no discoloration. The presence of obstinate vomiting in this case was of interest, as it was often a prominent symptom in Addison's disease, and the question did present itself, whether the condition of the adrenals had anything to do with the symptom in this case. In his own experience it had not been a symptom of malignant disease of these glands.

Dr Bruce replied.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION II.—MEETING IV.

Wednesday, 12th February 1890.—*Dr BERRY HART, President, in the Chair.*

I. *Dr J. D. Williams* showed—(a.) A specimen of FOREIGN BODY IN THE POUCH OF DOUGLAS. This was taken from a woman æt. 32, the mother of four children. She was admitted into the Royal Infirmary suffering from swelling of the legs and dropsy of

the abdomen in August 1888, and discharged in October. She was readmitted in February 1889, and died a few days after admission of heart disease. During her stay in the Hospital she was tapped four times for abdominal dropsy, and three times by her medical attendant during the interval she was at home. All the operations were performed through the abdominal wall. At the autopsy, on examining the pouch of Douglas, a piece of a Southey's draining-tube about three-quarters of an inch long was found on the right side close to the right utero-sacral fold. It was held in position by a series of delicate adhesions, some of which had pushed themselves through its side apertures to join together in its lumen. It was not encapsuled. In the fresh condition the surrounding peritoneum was covered with a brownish-black pigment. Probably in this case a Southey's tube was used to drain the abdomen; it broke in position, and the broken bit slipped into the abdominal cavity and gravitated to the pelvis. It must have been in the pelvis for at least three months. An interesting case of foreign body in the pelvic cavity is recorded by Dr Freund of Strasburg in the *Centralblatt für Gynäkologie* (17th December), where a hairpin was found in the course of an exploratory operation for suspected disease of the uterine appendages. The patient, who had symptoms of tertiary syphilis, was 41 years of age. Her period had been regular till about four months before she first applied for hospital relief; then it did not appear for two months; at the end of that period metrorrhagia set in, with spasmodic pains in the sacral region and hypogastrium. The discharge of blood continued for five weeks, then epileptiform fits occurred. The uterus was found anteverted, and a small oval tumour lay to its left side, connected by a tough cord to the pelvic wall. Tubal pregnancy was suspected. In the substance of this tumour a piece of hairpin an inch long, and consisting of part of the two shanks pressed close together just below their point of union, was discovered. Dr Freund points out that in this case the shanks of the hairpin had been pressed together, and probably introduced into the uterus for the destruction of the imaginary foetus, amenorrhœa having followed cohabitation. The pin had broken, found its way into the left tube, set up salpingitis, perforated the tube, and reached the omentum. (b.) A specimen of ACCESSORY FIMBRIATED END OF THE FALLOPIAN TUBE. This was removed from a patient that died of cerebral hæmorrhage at the Royal Infirmary in June 1889. She was 55 years of age, and had borne several children. The right tube, to which the accessory orifice is attached, is 11·2 cm. in length. The portion of tube between the two openings is about 1·3 cm. in length, and is much narrower—only measures half a centimetre in width—than that on the uterine side of the secondary opening, which measures 1 cm. There are two or three small pea-sized cysts in the serous covering of the tube. The lumen is normally patent. The veins of the broad ligament are quite

healthy. A small pedunculated cyst is suspended from the tubes of Kobelt.

II. *Dr J. W. Ballantyne* exhibited a **SYPHILITIC LIVER**, showing miliary gummata, from a new-born infant. The mother of the infant had been six or seven times under treatment for syphilis, primary and secondary, in the Lock Wards of the Royal Infirmary, and the infant, which was still-born, showed all the outward signs of congenital syphilis. On opening the abdomen, it was seen that the liver was markedly diseased. The organ was larger than normal; it had a dark reddish-brown colour, and had a marked elastic feeling, and scattered over the exposed surface were large numbers of small, round, yellowish-white spots resembling grains of semolina. These appearances were evident also on the cut surface of the liver, and it was to be noted that the grain-like bodies had a diameter seldom greater than a millimeter, and that they could not be picked out of the liver tissue, being intimately connected with it. The gall bladder was found to be small and collapsed, and almost entirely hidden from view by the right lobe of the liver. Microscopic examination showed that there was an increase in the interlobular connective tissue and in that surrounding the branches of the portal vein. The liver cells were very granular, but were not fatty, and at certain points, especially immediately under Glisson's capsule and in the interlobular spaces, were groups of granular cells, surrounded by small, round lymphoid cells and by a fibrous capsule. Sometimes the centre of one of these groups of cells had a caseated appearance, and in many of them acicular crystals like those of margarine could be clearly seen. These groups of cells with caseated centres constituted the little whitish grains which were visible to the naked eye.

III. *Dr F. W. N. Haultain* exhibited a specimen of **RUPTURE OF THE BLADDER**, the result of retention of urine caused by retroversion of the gravid uterus at the fourth month. The retention of urine had lasted only ten days. He specially pointed out that the rupture was secondary to gangrene of the organ, the edges of the rupture being black and gangrenous. He also drew attention to the fortunate rarity of the condition, only about a dozen records of such lesions having been published, and thought that the lesion probably resulted from a localized necrosis due to complete arrest of the circulation from thrombosis of the veins in that portion of the bladder wall. The thickened, congested state of the bladder wall in general, and the somewhat rapid localized gangrenous area, he considered went a long way to corroborate the theory of arrest of the venous return being the prime factor in vesical gangrene in cases of retention of urine.

IV. *Dr J. C. Webster* read his paper **ON THE DISPOSITION OF THE PUBIC SEGMENT IN PREGNANCY AND LABOUR**, which will appear in a future number of this Journal.

Dr F. W. N. Haultain congratulated Dr Webster on the painstaking nature of his excellent paper, which contained in a condensed form a large number of most important facts. He, however, personally was much indebted to Dr Webster for the information on the precise situation of the neck and base of the bladder during the second stage of labour. They were evidently well below the brim of the pelvis $1\frac{1}{8}$ th of an inch, and were thus undoubtedly in a position to be compressed between the foetal head and the bony pelvis. This point he had long wished to be certain of in respect of some investigations he was making on the arrest of the circulation of the bladder in labour, and he must therefore thank Dr Webster for having given him such precise information on the subject.

Dr Ballantyne congratulated Dr Webster on the excellent work he had done in bringing together evidence bearing upon the relation of the bladder in pregnancy and labour from so many reliable sources. He would offer one criticism, and that was that several of the specimens of which frozen sections had been made were abnormal (breech presentation, hand presentation, etc.), and that, therefore, results founded upon them could not safely be taken as representing what occurred in normal parturition. A sufficiently large number of approximately normal specimens from which to draw conclusions was still a desideratum. Dr Ballantyne was specially interested in the section of a case at the end of the second stage of labour, in which head moulding was shown in a very clear manner.

The President complimented Dr Webster on the very able appearance he had made in his first paper. The paper involved a very large amount of work, both careful measurement and accurate deduction. It completely established the results he (the President) had come to in 1880, and extended them in some points. The recent paper of Dr Symington, in which it was endeavoured to be shown that the pubic segment was so fixed that it could not be drawn up, but, strange to say, might be depressed, was thoroughly answered by Dr Webster, whom again he wished to congratulate on the ability distinguishing his maiden appearance before their Society.

Dr Webster thanked the Society for the kind reception given to his paper.

V. *Dr J. W. Ballantyne* read a paper on THE HEAD OF THE INFANT AT BIRTH, Part I., which will appear in a future number of this Journal.

The President made some remarks.

ROYAL MEDICAL SOCIETY.

Feb. 21.—W. G. W. Sanders, M.B., in the chair. *T. W. Eden*, M.B., gave a communication on a case of Cerebral Tumour.

Alex. Miles, M.B., opened a discussion on Intestinal Obstruction. After pointing out the great importance, but often the extreme difficulty of a correct diagnosis, the differential diagnosis between acute obstruction and pseudo-strangulation, acute peritonitis, cholera, hepatic colic, etc., was given. The importance of determining whether the attack is a primarily acute case or a case of chronic obstruction which has developed acute symptoms was next dwelt upon. To decide this reliance must be placed upon the previous history of the case, and upon the physical signs stated to have been present before the acute attack came on. Stress was laid upon the fact that in an acute exacerbation of a chronic obstruction case the intestinal coils are distinctly visible through the thinned abdominal parietes. Dr Miles next discussed the commonest varieties of acute obstruction, viz., strangulation by bands or through apertures, acute intussusception, volvulus of the sigmoid flexure, and obstruction by gall-stones; and he was of opinion that in those cases where, after careful examination, the practitioner could not make a diagnosis recourse should be had to exploratory laparotomy. In regard to the medicinal treatment of intestinal obstruction, opium was given the first place; but it should not be administered before a diagnosis has been made, because it masks the subsequent symptoms, and may prevent the exact diagnosis from being arrived at. The treatment by means of enemata, aperients, electricity, and massage was then discussed.

The discussion was taken part in by Drs Sanders, Middlemass, Adamson, Pilgrim, Rudolf, Eden, and Crerar, and Messrs Giles and Sutherland.

Feb. 28.—R. O. Adamson, M.B., in the chair. *R. J. Drummond, M.B.*, read a communication on a case of Canine Insanity.

Dr Pilgrim read a dissertation on the Nervous Temperament.

March 7.—R. O. Adamson, M.B., in the chair. *Vaughan Harley, M.B.*, read a communication on M. Pasteur's Method of Inoculation for Rabies.

Mr Giles read a dissertation on Suppuration of the Middle Ear and its Consequences.

March 14.—A. L. Turner, M.B., in the chair. *R. A. Fleming, M.B.*, read a communication on Davos Platz as a Health Resort. An account of this place, which he had lately visited, was given, and charts illustrating the mean temperature, rain, and snow-falls were shown. The way in which the climate of these high altitudes acts was then discussed, and the influence of the dryness of the atmosphere upon tubercular deposits in the lungs emphasized. Dr Fleming thought the patients to send there were early cases and cases not running a rapid course. As to whether hæmoptysis cases should be sent there was much difference of opinion, some of the local physicians recommending this course, while others condemned it.

A. L. Turner, M.B., read a communication on Electrolysis in Cancer. A short sketch of the method and recorded results of this mode of treating malignant disease was given. A case was read in which it had been tried without any apparent effect—the tumour, a scirrhous of the mamma with enlargement of the lymphatic glands, requiring subsequently to be excised.

Part South.

PERISCOPE.

MEDICAL PERISCOPE.

By FRANCIS TROUP, M.D.

Berlin. Klin. Wochens., No. 7, 1890.—Dr E. Levy of Strassburg tells of the micro-organisms to be found in the sputa of influenza patients. Together with staphylo- and streptococci, the diplococcus pneumoniæ of Fränkel was found in great abundance, and white mice inoculated with the sputa all died with symptoms of so-called sputum septicæmia. But as the diplococcus pneumoniæ and strepto- and staphylococci are to be found in the sputum of healthy people, not much could be asserted of this discovery.

Levy thought, however, that better results might be obtained by making pure cultivations of the micro-organisms found in the diseases which in many cases followed upon the influenza, and it was a noteworthy fact that in Strassburg otitis media was often a sequela. In many cases submitted to examination, and the secretions cultivated on agar and gelatine, the Fränkel diplococcus and staphylococcus pyogenes alb. were found. The secretions from empyemata and pleuritis were also examined with similar results. In the broncho-pneumonia of influenza he only once succeeded, intra-vitam, in cultivating the Fränkel diplococcus. This is not to be wondered at, seeing that in the disseminated foci of the disease the infiltrated parts may be easily missed when the trial puncture is made. In one case of lobar pneumonia which came to autopsy, the gray hepatized lung contained the diplococcus pneum. and the staphylococcus pyogen. alb. It was a striking fact that seventeen times out of eighteen the Fränkel diplococcus was found. However, Levy thinks it would be rash to conclude that this coccus is the exciting cause of la grippe.

In one case of purely serous pleuritic exudation which had complicated an influenza broncho-pneumonia, the staphylococcus pyogen. alb. was alone found. As Ribbert and Bouchard have also found this coccus in similar circumstances, it seems probable that several fungi are to be found in influenza. As it was only in the sequelæ and complications of influenza that cultivation succeeded, it seems fair to conclude that none of the cocci found were the

primary causes of the disease, but rather that they were the accompaniments of secondary infections for which the influenza had prepared the ground. On the other hand, it was also remarkable that in the most various complications (pneumonia, pleuritis, otitis) the pneumonia diplococcus was the preponderating one.

Every observer in Strassburg had the impression that there were certain relations between the epidemic influenza and the uncommonly large number of cases of croupous pneumonia which came under treatment at the same time. If one grant that the Fränkel diplococcus plays a chief part in the origination of genuine lung inflammation, the supposition that a certain relation subsists between it and the influenza cannot be altogether dismissed.

In the meantime, as the oneness of the organism provocative of pneumonia is by no means established, we must believe that diverse micro-organisms have the power to bring about the pneumonic infection. In the same way one can think that the several pus fungi may be the proximate cause also of influenza. They can only, however, unfold their deleterious workings in the respiratory passages if definite predisposing conditions are fulfilled, for the decision of which, however, we have provisionally no safe ground to go upon.

Ibidem.—Dr Artur Kollmann, Leipzig, deals with the microscopy of the blood of influenza patients. He selected, in the first place, only such patients who really had typical influenza, beginning with rigor, then fever, and the series of varied catarrhal and nervous manifestations (as diverse almost as the cases), and also the highly pronounced malaise which was generally out of all proportion to what could be found wrong objectively. Patients with complications, such as demonstrable infiltrations of the lung, were not examined, as it was thought some mixed infection might be at the bottom of them. Cases also which aborted, as it were, being almost feverless, or where there were only catarrhal feverish phenomena without other widespread general symptoms, were neglected, he thinking that under the impression of the epidemic many merely catarrhal cases were wrongly called influenza.

The patients whose blood was examined were fresh cases, still in the initial feverish stadium of the illness. No splenic enlargement, or only slight, was ever found. The blood was always taken from the finger-tips carefully washed, in the following order, with soap, sublimate, absolute alcohol, and sulphuric ether. The needle used was always heated in the usual manner immediately before the prick was made. The coverglasses and slides were bacteriologically clean. The preparations were at first examined in the fresh state, with Zeiss oil immersion 1-12th and oculars 2-4; and afterwards, for control, with Zeiss' apochromatic, which gave higher magnifications. The stained preparations were made with methylene blue, krystal violet, Bismarck brown, eosin, and combinations of the

same. The methods used were overstaining and subsequent washing in absolute alcohol and clove oil, and also Löffler's universal method, described in 1884. The result of these investigations has been, in the meantime, a negative one; neither in fresh blood nor in coloured preparations did anything particular show itself. In the whole batch of preparations there certainly always recurred definite, minute forms, with lively movements; all those are, however, to be found, under the same conditions of examination, in the blood of perfectly healthy people. The larger of them are like round or oval cocci, diplococci, or rods. The form of the smaller can scarcely be defined, as they are so minute as to be almost invisible. The most of the motile simply rounded forms had a diameter of $5-8\mu$; the diplococcal sorts and the simply oval forms measured in length 1.5μ , and even more. The rods sometimes showed in the middle or end a small swelling; their breadth amounted to about 0.5μ , the length $1.5-2.5\mu$. Besides those shorter rods longer forms also occur, but not often; one meets at times some almost equaling the diameter of a red blood-corpuscle. It is highly probable that those figures are, partly at least, identical with the microzyma sanguinis of Béchamps, the point and rod-shaped bodies seen by Bettelheim, as well as those called hæmacocci by Nedsvetzki. To the author it also seemed that the bodies had a striking resemblance to the spores and rods described by many authors as those to be found in the blood of malarial patients. They cannot be considered as accidental contaminations of the preparations introduced by air, etc., neither are they skin parasites. But also to the supposition that there is nothing more or more important in the matter than "molecular movement," or products of decomposition set in motion passively, the author cannot adhere; for in preparations prevented from drying and coagulation the forms in question increase in number, and retain their motility, even after days.

In the configuration and grouping of the red blood-corpuscles nothing abnormal was found, and within the cell-body nothing remarkable could be demonstrated.

The blood-plates, partly isolated, partly in little heaps, were best seen in uncoagulated preparations immediately after the withdrawal of the blood from the finger. When the fibrin network began to appear they became scarcer, and then frequently one could observe little grains (possibly in part disintegration products of the plates) lying in the meshes of the net. In stained preparations made with krystal violet they were also well seen, much smaller than in freshly drawn blood (one-fifth to one-third of the red corpuscles), and even smaller than the smallest nuclei of a polynuclear leucocyte.

The smallness and peculiar grouping of these plates could easily lead one to mistake them for heaps of cocci, and this has no doubt frequently happened when methods of investigation and special appliances were less perfect than now. In the appearance and form of the fibrin network nothing remarkable was noticed.

The white blood-corpuscles were largely increased in number; this increase, without splenic enlargement, is not unknown in other infectious diseases. To recapitulate, the author's researches in influenza have established the following propositions: in fresh, unstained preparations now more, now fewer, vivaciously motile forms are present; they have oval or round shapes, or that of rods oftenest short, seldomer long. The last have here and there an intumescence on either or both ends, and are then dumb-bell shaped. Forms closely connected in pairs are also frequent, and then are like to diplococci. A few are so small that their form cannot be defined. As far as one can decide by mere microscopic observation, those forms are the very same as one meets in blood drawn from people in perfect health. The white blood-corpuscles were increased in all the cases examined, sometimes as much as three times the normal number. This increase was noticeable in the very first days of the fever, and continued when reconvalescence was protracted for weeks.

Supplementary Remarks.—The author's manuscript had been put into the hands of the printer before Kleb's researches on influenza blood (translated in the *Edinburgh Medical Journal* for March 1890) had appeared. The description of the "monads" agrees closely with what he himself had seen (described above). He cannot suppose them to have any connexion with influenza, as they are to be found, as above said, in the blood of healthy men. Our author has not observed the flagellates seen by Klebs in the interior of the red blood-corpuscles, and can therefore assert nothing about them.

Centralblatt f. Bakter. u. Parasitenkunde, Nos. 8, 9, 1890.—Von Babes and Ribbert relate their researches on the bacteria of influenza. The latter, who himself suffered from the disease, found in the tracheal mucus and lung tissue of one case (not complicated with pneumonia), in which he made cultivations, countless colonies of the staphylococcus aureus and one identical with streptococcus pyogenes. This was the only organism to be found in cultivations made from spleen and kidneys in this case.

Ribbert himself took ill, and from his sputa plate cultures were prepared and showed numerous colonies of this streptococcus, a few staphylococci, and numbers of a rod-shaped liquefying bacterium. Without saying that this streptococcus is the real virus of influenza, Ribbert seems to think that it plays a very important part in complicated cases.

Ibidem, No. 7, 1890.—Ludwig Oelkers relates a case of the presence of quicksilver in the tænia passed by a syphilitic patient treated by that medicine. A tape-worm joint pressed down between two slides with glycerine showed the mercurial precipitate in the vas deferens, in a few of the vasa efferentia, and in the seminal vesicle. The vas deferens contained the precipitate in such quan-

ties that it looked, in all its windings, like a black cord. The vagina appeared also as a black tube, and its section showed only a very small lumen, owing to the deposit. The uterine wall also showed the deposit, but ovaries and other organs were free. Sections through the joints showed their parenchyma, peripheral as well as central, to be stuffed with mercurial particles. On the superficies of the segments the mercury had deposited most in furrows and depressions. This was particularly the case in the head, where great quantities were deposited between and under the sucking discs. Indeed, the black colour of the head was easily seen macroscopically. Whether sulphide or oxide was the chemical character of the deposit was not made out.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

THE TREATMENT OF ECZEMA.—Professor Pick, the introducer of the gelatine preparations subsequently modified by Dr Unna, thus describes his mode of treating eczema. In general terms eczema may be said to exhibit the following stages—the papular, vesicular, and oozing, as those of advance, the scaly as that of commencing retrogression. The so-called impetiginous or pustular stage is due to the deposition of micro-organisms, which determine the transformation of the exudation into pus. It is therefore a septic complication. There are two indications which we must satisfy in treating an eczema. We must protect the diseased portion of skin from external influences, and by suitable antiseptic measures we must prevent any local infection. For the moist stages of acute eczema he uses his salicylic soap plaster, for the dry his sublimate gelatine. The formula for the plaster is either—

R	Emplast. saponat. liquefact,	. 100·0
	Acid salicylic,	. . . 5·0

or

R	Emplast. saponat. liquefact,	. 80·0
	Olei olivarium	. . . 20
	Acid salicylic	. . . 2·5

when a more adhesive and weaker plaster is indicated. Both are to be spread thickly on calico. The plaster, cut into strips, is firmly applied to the diseased parts, and may remain undisturbed for some days. The patient complains of burning pain soon after the plaster has been laid on. This shortly passes off, and is all the more readily borne, because with the application of the plaster the vexatious itchiness disappears. The first dressing must be changed on the third or fourth day should the discharge be abundant. Any

subsequent one may continue unmoved for eight days or longer. In his out-patient department he frequently finds that those of the poorer class who live some distance from Prague sometimes do not return for a fortnight or three weeks, and a second application is not needed. As a rule the dressing need not be changed till the annoying itching has reappeared, and this at each dressing is longer and longer of showing itself. This plan suits widely-diffused eczemas, and he has never seen any evidence of absorption, as is so apt to occur, when under similar circumstances carbolic or sublimate dressings are employed. When in this manner the scaly stage has been reached, the time for the gelatine has come, the formula for which runs as follows:—

R. Gelatina alba, . . . 30·0
Aq. distillat., . . . q. suff.

Macera per aliquot horas, deinde liquefac in balneo aqua, et evapora ad pondus, 75·0.

Adde—

Glycerini, . . . 25·0
Hyd. perchlorid., . . . 0·05

Antea in pauxillo aqua solut.
Effunde in forma disci.

This gelatine dressing is so elastic that on the face the movements of expression are not interfered with, while it is quite transparent.—*Verhandlungen der Deutschen Dermatologischen Gesellschaft, Erster Congress, 1889.*

ANTIPIRYN RASH.—Perret and Devic note that many antipyrin rashes have been recorded. They resemble measles in consisting of irregular erythematous patches. According to these observers the rash appears chiefly on the face, an observation which is the reverse of what is usually believed. The analogy of the antipyrin rash with measles is striking, for the former may be accompanied by catarrh of the eyes and nose and by elevation of temperature. The importance of remembering this fact for purposes of diagnosis is evident (*La Province Medicale*, 29th June 1889).—*British Journal of Dermatology*, February 1890.

ICHTHYOL, RESORCIN, AND SALICYLIC ACID.—In the course of some remarks on recent advances in the treatment of diseases of the skin, Dr Bulkley says of ichthyol that it should always be used weak at first, the strength being increased according to the effect produced. Two per cent. either in water or in ointment is strong enough to begin with, and rarely will more than 5 per cent. be well borne—at any rate on American skins. As a lotion, 2 per cent. to 3 per cent. in water, it certainly often exercises a remarkable effect on ulcers of the legs, they being kept wet with it all the time, the dressing being covered with a thickness of woollen blanket (but not rubber or oil-silk) to prevent too rapid evaporation. It is sometimes well at night to substitute an ointment with

2 per cent. or 3 per cent. of ichthyol and a little zinc oxide. In certain moist eczemas about the folds of the body, a light bathing with a weak 2 per cent. ichthyol lotion, followed by a calamine and zinc lotion, will give much better results than the latter alone. In certain cases of eczema in infants, the effect produced by a thorough and continuous use of a zinc ointment containing 20 grains of ichthyol and 15 or 20 grains of salicylic acid is certainly remarkable, and undoubtedly much greater than from either the zinc ointment alone, or when combined only with the salicylic acid. In his experience the action of resorcin is more uncertain, and its use more restricted. It is serviceable in pityriasis capitis, used in a 3 per cent. to 5 per cent. solution with alcohol and castor oil. In seborrhœic eczema it also acts very well in a strength of 3 per cent. with zinc ointment. It seems to have considerable effect on the sebaceous glands, and is of value in acne. Used in an alcoholic and watery solution of from 2 per cent. to 5 per cent., it checks the oily secretion so common on portions of the face, and as an addition to lotions containing sulphur, it often aids greatly in the treatment of acne. It may prove irritating if used in too strong a proportion, and may cause discoloration of the epidermis, which is slow to disappear. Salicylic acid has a drying effect on the skin. Combined with hair tonics in a strength of 3 per cent. to 5 per cent., it acts excellently in oily seborrhœa, and when added in a strength of 2 per cent. to 3 per cent. to some ointments, it increases their efficiency. As an excipient for ointments, Dr Bulkley still prefers cold cream, the unguentum aquæ rosæ or Galen's cerate.—*Journal of the American Medical Association*, 7th September 1889.

PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By FRANCIS CADELL, F.R.C.S. Ed.

CAN URETHRITIS BE CONSIDERED A SPECIFIC DISEASE?—In an editorial of *The American Lancet*, October 1889, this subject is discussed, and a negative answer given to the question. At the present day authorities are divided as to the nature and cause of urethritis. In the experience of the writer, two cases of urethritis came under observation, one induced by excessive bicycle riding, the other by violent horseback exercise. The symptoms were the same as could be expected in the worst case arising from impure connexion. In one case epididymitis ensued. There was no difference in microscopical appearances in these cases and pus taken from a source of venereal origin. Dr Sternberg has shown that the micrococcus found in gonorrhœal pus is identical with that found in a deep-seated whitlow, or in urine undergoing alkaline decomposition. "Furthermore, the denial that pus from a non-gonorrhœal source is contagious has been disproved by numerous experiments. Vetch transferred muco-pus from Egyptian ophthalmia to the urethral mucous membrane, and developed gonorrhœa

thirty-six hours later. M. Gayomar introduced pus from granular purulent ophthalmia into his own urethra; at the end of the third day the disease declaring itself, ran a severe course, and only yielded after three weeks' energetic treatment. Other cases might be given showing where urethral inflammations were produced by pus from the most varied sources—from a common abscess, from vulvitis, from infantile leucorrhœa (caused by worms), etc. Considering all these facts, and having taken a most careful survey of the literature extant upon this portion of genito-urinary diseases, we must, for the present at least, decline to view a gonorrhœa or urethritis (the terms being interchangeable) as a specific disease."

EXPERIMENTS RELATIVE TO THE THERAPEUTICAL VALUE OF THE EXPRESSED JUICE OF THE TESTICLES WHEN HYPODERMICALLY INTRODUCED INTO THE HUMAN SYSTEM.—In *The New York Medical Journal*, 31st August 1889, Dr W. A. Hammond published the following ten cases illustrative of the good effect of this treatment in different forms of disease. He used the testicle of the young ram, stripped of its coats, cut into small pieces, and crushed in a wedgwood mortar till they were reduced to a pulp. A quantity of pure water equal to about half the bulk of the crushed testicle was mixed with it, and filtered through Swedish filtering paper. In nearly every case the liquor was injected under the skin within an hour and a half after the death of the animal. In no case was it used later than three hours after the animal was killed.

Case 1.—The first experiment was performed upon himself; not because of any infirmity, but simply to experience any possible ill effects on his own person before experimenting on others. He did not experience any strengthening effects, but a result ensued for which he was quite unprepared. As a result of a fall from a railway train three months before, his left arm and side had been severely bruised and strained. Up to the time of the injection it had been the seat of constant pain, and movement was much impaired. After the injection these symptoms, in one night, disappeared. No local effects followed the first injection, but an abscess occurred at the site of the second injection.

Case 2.—A man, aged 65, had suffered for several years from insomnia and a weak heart. The rapidity of the pulse-beat was lessened by the injection, but the insomnia was removed only for one night. After three weeks, however, the irregularity of the pulse returned.

Case 3.—A man, aged 34, for several years affected with impotence, apparently resulting from excessive sexual indulgence. He received three injections on the 10th, 12th, and 14th August 1888, and on the 16th he had entirely satisfactory sexual intercourse.

Case 4.—A man, aged 36, with impotence, had four injections between 12th and 21st August. He was afterwards able to perform the sexual act.

Case 5.—A man, aged 50, suffered from cardiac weakness, nervous dyspepsia, spinal irritation, and general debility, with a strong tendency to hypochondria. These ailments were much benefited by two injections at an interval of four days.

Case 6.—A man, aged 56, a mason, had been unable to work for a year from lumbago. Within ten minutes from the first injection he was free from pain, and has been able to work ever since.

Case 7.—A man, aged 83, with hemiplegia of two years' standing. Great improvement in walking after one injection. Small abscess formed where injection was made.

Case 8.—A woman, aged 65, had suffered from melancholia and fixed delusions for three months. No benefit from injection.

Case 9.—A man, aged 54, of good health, but suffering from muscular rheumatism, chiefly in lower extremities, had also slight lumbago. First injection on 12th August. On 14th, the pains, stiffness and difficulty in walking had gone. The second injection was made on that day, and the third on the 16th, but on this occasion, without his knowledge, water was substituted. Two days after he returned, saying that the last injection had done him no good. Another injection of the liquor was given, after which he said he was well.

Case 10.—A man, aged 60, suffering from the effects of excessive mental work and from cardiac asthma. On the 21st and 23rd August he received injections, followed by marked improvement in his symptoms. At his first visit some inert medicine in pills was prescribed, and the idea impressed upon him that whatever benefit resulted would come from these pills.

CIRCUMCISION AND HEREDITY.—Dr Levy, a dentist of Stettin, has written to the Editor of the *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin*, an account of some occurrences in his own family that have a bearing, he thinks, on a question raised by Professor Weismann at the sixty-first *Versammlung deutscher Naturforscher und Aerzte*—that of the hereditary transmission of acquired peculiarities, such as the lack of a foreskin in Jews. He states that, like his father before him, he was born without a foreskin—as he expresses it, “regelrecht beschnitten”—furthermore, that this was the case with his four brothers also, who died in childhood. An occasional natural Apella is to be met with among Gentiles, but this, of course, raises no question of heredity; such a group of them as Dr Levy's communication mentions is a different matter, however, although not a very convincing evidence of evolution.—*The New York Medical Journal*, 31st August 1889.

ELECTROLYSIS IN URETHRAL STRICTURE.—The two following letters on this subject are taken from *The British Medical Journal*, 31st December 1888, and 4th January 1890 :—

"SIR,—Having during the past few years taken much interest in the electrolytic treatment of stricture and other lesions of the urethra, I much regret that I was prevented being present at the meeting of the Medical Society the other evening when Mr Bruce Clarke read his paper on this subject. I shall, therefore, be much obliged if you can find room for the following brief remarks. For the successful carrying out of this treatment much time and patience are necessary. The few failures I have seen have really been due to impatience. When, in a sitting, no progress is apparent after a few minutes, an increased current is turned on, and considerable force used to get the electrode through. Can one be surprised if, under these circumstances, a false passage is made, hæmorrhage and urinary fever ensue, and the treatment is cast aside as worthless? Experience has taught me to limit this method to strictures of the deep urethra, and in these, of whatever variety, it is almost always successful. When I say successful, I mean that the same result is attained as when an internal urethrotomy has been performed, namely, the lumen of the stricture has probably been enlarged to 22 Fr., and for the maintenance of which the passage of a bougie at stated intervals is absolutely necessary. I have not the same proportion of cures to record which Mr Bruce Clarke claims to have obtained, for in only one of my cases has an absolute cure resulted, by which I mean that no tendency to recontraction remains, although all instrumentation has been given up for, say, six months. Mr Clarke says that, 'Of fifty cases, twenty-three were known to be well after periods varying from 1½ to 3 years.' What does he mean to imply by 'well?' If he means that such a one is restored to comfortable micturition, and can maintain this state by passing his bougie at intervals, I can well believe him; but this, of course, is very different from what one usually understands as being well. I have almost entirely limited electrolysis to the treatment of resilient and severe cases of stricture, using it as a substitute for urethrotomy. In this way I have during the past year treated, amongst others, two medical men, both of whom are loud in its praise, and have unbounded confidence in it. In this respect I have been more fortunate than my colleague Mr Reginald Harrison (*vide* his remarks on the above paper). It is, I think, an important point in cases of multiple stricture, and one which I always endeavour to carry out, namely, to deal with those in the penile urethra, either by cutting or dilatation, before applying the electrode to the deep urethra. One is often surprised to find how much benefit has occurred to a deep-seated stricture after free division of a meatal or other anterior one, thus clearly demonstrating its, at all events, partly spasmodic character, a point on which much stress is laid by Otis. To this element of spasm the good effect of electrolysis is no doubt greatly due. In the *Medical Press* of 11th April 1888, I published a paper on this subject, and subsequent experience has only confirmed the good opinion I then

expressed of it when limited to subpubic strictures. Before closing these remarks, I would add that this form of treatment is of much benefit in many cases of perineal pain and other urethral neuroses. I am at the present time treating a gentleman the subject of stricture, for which he has twice undergone internal urethrotomy, in whom the passage of a bougie is always followed by much genital excitement, and which so annoys him that he has often been tempted to neglect treatment. Since undergoing electrolysis (he has had nine or ten sittings) he is no longer troubled in this way, and his stricture has been dilated from No. 12 to No. 24, French gauge.—I am, etc.,

"Wimpole Street, W.

F. SWINFORD EDWARDS."

"SIR,—In the Journal of December 21st is a letter from Mr Swinford Edwards on the subject of electrolysis in urethral stricture, in which he criticises some of the statements which appeared in my paper on that subject. His remarks are mainly directed to the treatment of multiple strictures, and to my definition of the term 'cure,' and I will reply briefly to both of them. Had my friend Mr Edwards been present at my paper he would have heard that I advocated that each stricture should be treated separately, and I further pointed out that inasmuch as some of the deep strictures were undoubtedly of a spasmodic character, as was first demonstrated, it was doubly necessary that the precaution of treating each stricture separately should be adopted, and with a view to emphasize this fact still further, I related an instance in which I had treated by electrolysis a stricture which proved to be spasmodic, and which, though actually aggravated by electrolysis, was at once cured by urethrotomy. As to my definition of the term cure, I only use the term as signifying that there has been no recontraction, and that no instrument has been needed to dilate the passage. One of my cures is at present in St Bartholomew's Hospital under my care for stone in the bladder; he underwent electrolysis four years ago, and his urethra now admits No. 10 English, though no dilatation has since been practised. Another case I know is well 3½ years after electrolysis, who had previously had external urethrotomy performed without any permanent benefit. I could produce many cases in which a resilient stricture has been rendered tolerant of dilatation, in which a gleet has been arrested, and other conditions have been much benefited by the treatment, but I do not term these cures, nor, I gather, does Mr Edwards. No one would emphasize or endorse more fully than I should Mr Edward's remarks on the need of patience. It is the key to the treatment. I must not, however, take up your space further, but would refer those who are interested in the subject to my paper, which I hope shortly to publish *in extenso*.—I am, etc.,

"Harley Street, W.

W. BRUCE CLARKE."

Part Fifth.

MEDICAL NEWS.

OBITUARY.

HENRY SCOTT ANDERSON, Esq., M.D., F.R.C.S. EDIN.

It is with deep regret we have to record the death of Dr Henry Scott Anderson of Selkirk, in his seventy-ninth year, one of the most notable of "Our Gideon Grays,"¹ alike from his honourable profession and the place of his birth. He was born on the 13th October 1811 in the old family house (where the present residence stands), which Sir Walter Scott, while Sheriff of Selkirkshire, used to pass almost daily to and from the Court-house, and which he assumed as the residence of "Mr Gideon Gray, M.A., surgeon of the village of Middlemas," in his story of *The Surgeon's Daughter*. Since 1770 Dr Anderson was third in the direct family line—grandfather, father, and son—who, as medical practitioners, have spent long lives of labour and love in the wide district of Selkirkshire, and the contiguous borders of Roxburghshire, Dumfriesshire, Peeblesshire, and Edinburghshire—all men highly esteemed and beloved professionally and socially.²

Although Dr Anderson retired from active practice ten years since, it is only within the last three or four years there had been failing health from bronchitic asthma. He was, however, able at times to ride to the meet of the Duke of Buccleuch's hounds, or to drive out for family calls, or occasionally semi-professional or consulting visits; and it was on one of those occasions, on the 8th March, that he "got a chill," which proved the precursor of an attack of double pneumonia. From personal knowledge of that serious affection and the pre-existing condition of his lungs, he clearly foresaw the hopelessness of recovery; and with an unclouded mind met the end in calm resignation.

Dr Anderson took his degree of M.D. in 1832,³ after a five years' thorough course of medical instruction at our University and in classes of the Extra-Mural School; and during considerable intervals at home, by assisting his father, he obtained no small amount of practical experience. He thus imbibed the soundest opinions of these times in Physiology, Pathology, and Practice of Medicine and Surgery, as taught by Alison, Home, Christison, Syme,

¹ *Horæ Subsecivæ*, vol. ii. pp. 245-59, Ed. 1882; also, *Edin. Monthly Journal of Medical Science*, vol. i., 3rd series, pp. 493-5, "The late Thomas Anderson, Esq., Surgeon, Selkirk."

² Besides father and grandfather, Dr Anderson had five uncles and two brothers in the medical profession.

³ Dr Anderson also became a Fellow of the Royal College of Surgeons, Edinburgh, in 1859.

Knox, Macintosh, and others, which opinions he held to a large extent even in the latest days of active practice, while he did not reject altogether, or undervalue, many of the recent views and methods. Thus, regarding venesection, we may quote from his Harveian Address of 1879,¹ as a contribution to the question again being raised, and which we think young doctors should unprejudicedly consider:—"Like others following the teaching of the time, I bled frequently and very freely, and sometimes repeatedly, when I first began practice; and, with one exception, I have never seen any harm result. Unquestionably the lancet in disease, like all our best remedies, is a two-edged tool, requiring careful handling and judicious use. Where there is little or nothing wrong, on the other hand, the loss of blood moderately can be easily borne; indeed, in the present day I think we are inclined to set too high value upon the blood, and too slight a value on husbanding the nerve force. It is a matter of daily observation what enormous quantities of blood may be lost with apparent impunity beyond the temporary faintness, and how rapidly strength and colour are re-established. Nor is this to be wondered at, when we know by direct microscopic observation how rapidly blood-corpuscles are manufactured and elaborated in the blood glands, and that after an ordinary meal they are enormously increased in quantity. We know, also, how short-lived these are, and that they must be constantly replaced in enormous numbers; and even more easy to understand is the ease with which the volume of blood can be brought up to the normal standard." "I am fully persuaded there are conditions in acute, and even in some chronic diseases best treated by venesection." Dr Anderson then goes on to speak of its utility in acute inflammation of the lungs, in cerebral hæmorrhages, acute nephritis, acute rheumatism, puerperal convulsions, etc. In these reminiscences of 45 years' practice he speaks also of the undue neglect at the present time of counter-irritation by blistering, and the comparative disuse of mercury; while he hails with satisfaction many of the additions to our armamentarium. Altogether that address was most creditable to Dr Anderson's mental powers and professional attainments; and it was highly appreciated by the Harveian Society, not only on account of the thoughtful discussion on medical topics, but from the interesting incidents narrated in it, and the graphic descriptions given of his experiences as a country doctor. His life as such twenty or thirty years ago showed the possession of remarkable pluck and physical endurance. Thus, often in the wild uplands of Selkirkshire during the darkness of night, as well as in the day-time, he was exposed to down-pours of rain, drifts of sleet or snow, or tempests of wind. Then these rides were occasionally over moorlands, or tracks not easily found or kept; and the day's ride would sometimes amount—counting zig-zag diversions for visits

¹ *Edinburgh Medical Journal*, vol. xxiv., new series, pp. 1057-70.

at different places—to sixty, seventy, or more miles. Besides, not infrequently after arriving home at night, or early morning, he had to start immediately in consequence of an urgent call to a place at a distance near where he had been only a few hours previously. Then at times, also, there was a long and tedious waiting on a primiparous herd's wife in some comfortless hut, where there was but poor fare for the body, and still less refreshment for the mind; and all this probably with small, or without any recompense. Dr Anderson under such circumstances was never guilty of using instrumental means—although no one was more able than he to do that skilfully—in order merely to get quickly on the road again.

In those days there were not the number of practitioners as at present to take up the work in different districts of the country, and so the labour entailed on Dr Anderson was great and unavoidable, but his was not the heart to grudge such in doing his utmost to relieve human suffering. Besides, a heavy load of responsibility had often to be borne in these far-away places, there being no brother doctor to consult with, or any one even fit to assist in some operation which required to be promptly performed.

Considering all these circumstances, in which there was so much expenditure of time, strength, and mental energy, it would have been remarkable if Dr Anderson, after his student life, had been able to read much, or to contribute more than he has done to the literature of his profession. Under favourable circumstances he had the intellect to have done this. As a boy at school he carried off first prizes. At the meetings of the Border Medical Association, of which he was President, on several occasions, and at other public meetings, his speeches were neat and always to the point; and when Provost of Selkirk, which he was for twelve successive years, he showed very decided administrative capacity, great shrewdness, discretion, and firmness, with courtesy. It seems remarkable that during the length of time he was in that council he was able to spare the time for such work; but with his extreme punctuality, power of arrangement, and conscientiousness of purpose, he never allowed the municipal to interfere with his professional duties; and during his time in the council he was able to give efficient help in bringing about excellent sanitary arrangements and other important improvements in that Royal Burgh.

As a summing up of Dr Anderson's general character as the best type of a country doctor, we may quote the words of Lord Napier and Ettrick in 1881, when presenting him with his portrait by George Reid, R.S.A., subscribed for by friends of every rank and position in the country. In speaking of Dr Anderson's father—"the old Doctor"—his Lordship said what might with equal truth be applied to his son Dr Henry Anderson:—"Cold, wet, darkness, distance, never daunted him in his restless track; wealth or greatness never stimulated his impartial activity; and poverty never chilled his zeal. He was the perfect model of the country physician—a good

Christian, a good husband, a good father, a good friend, a good companion, a gentleman in every word and deed."

It need only be added, that like his father, whether in the ducal residence of Bowhill, the hut of the shepherd, the house of the artisan or mill-worker, he was courteous, kindly, familiar; attentive, skilful; a wise adviser in matters outside his profession; himself extremely careful of means, but most liberal, just, and generous in his gifts and benefactions; animated by kindly cheerfulness in social life, and of irreproachable character. He has indeed earned for himself in the district in which he has lived and laboured, as did his father, the title given him of "our old Doctor," and as such will long live in the memories of the Border Counties.

DAVID PAGE, M.D. EDIN.

FEW recent occurrences have created a greater sensation in the medical circles of Edinburgh than the unexpected death of Dr David Page, by which event the University has lost one of its most distinguished graduates, and a very valuable examiner. Dr Page died in Dublin on 17th February from tumour of the brain, a diagnosis confirmed by post-mortem examination.

David was the elder son of Dr Page, F.R.G.S., whose geological writings are well known, and who was Professor of Geology in the College of Physical Science, Newcastle-on-Tyne. He was born in Edinburgh, educated partly at the Madras College, St Andrews, and at the famous Old High School of Edinburgh, from which he passed to the University. After his humanitarian studies he devoted himself to Chemistry under Sir Lyon Playfair, the result of his work there being that he gained the Hope Prize in Chemistry in 1870. He went on with the study of Medicine, taking the Degrees of M.B. and C.M. in 1870 with First Class Honours, and gaining the Ettles Scholarship as the most distinguished graduate of his year. His title to this distinction was unequivocal, for he accomplished the unprecedented, we believe, unique feat of getting the high mark of B in every one of his subjects of examination, written and oral, from Chemistry and Botany to Clinical Medicine and Surgery. He went on to his Doctorate in 1873, on which occasion he gained one of the University Gold Medals for his thesis on the Value of certain Signs in cases of Death by Suffocation, and on Death by Hæmorrhage in the New-born. He engaged in medical practice for a while in Kirby Lonsdale, but soon afterwards removed to Kendal on his receiving the appointment of Medical Officer of Health for the combined districts of the County of Westmoreland. The excellent work which he did in this capacity attracted the notice of the Sanitary Authorities at headquarters, and he was therefore appointed one of the Medical Inspectors of the Local Government Board, his district being the Northern Counties of England. For convenience in discharge of

this duty he removed to Lancaster, which was his residence up to the time of his death. His reports to the Local Government Board were models in the way of fulness of investigation and clearness of statement. He wrote valuable papers on the subjects of the water supply of the country and rivers' pollution, and on fevers. David Page, however, was not a mere hygienist, he had had enough of experience in his profession to make him a good, practical man, and he was an honorary member of the Clinical Society of Newcastle-on-Tyne, before which he read, about two years ago, a very interesting paper on the much neglected subject of the subsoil of towns.

Dr Page's thorough acquaintance with medical jurisprudence and hygiene readily pointed him out as a most suitable Assessor Examiner on these subjects in the University of Edinburgh, of which he was so distinguished a graduate. He was appointed to this office in 1889, and his lamented death has created a vacancy which it will not be easy to fill. As an examiner he was most searching in his questions, by no means too easy to be satisfied, but at the same time showing a quiet manner and courtesy towards candidates which made him extremely popular with them, and has left an enduring impression in the School of Medicine.

Of his professional acquirements and distinction we have already spoken, but he was not merely a noted member of the medical profession and a scientist, he was a many-sided man otherwise.

Those who had the pleasure of his acquaintance found in him a genial friend brimful of good conversation, the flavour of which was enhanced by a spice of quiet humour. His literary tastes were excellent, a sample of which was given by him in an address on our National Poet, which he delivered at a Burns' festival at Newcastle, which was so highly appreciated by his audience that they requested him to publish it. He loved the fine arts; he cultivated music, and was a good flute-player, a zealous Freemason, and a golfer. Like some other members of the medical profession who have devoted themselves to State Medicine, he entered on the study of law, was a member of the Middle Temple, and but for his state of health would have been called to the bar last spring.

The fatal disease, viewed in the light of its subsequent history, seems to have commenced about three years ago. About eighteen months ago he suffered from neuralgia of the jaw, on account of which he was operated on, with temporary relief, by Mr Page of Newcastle, and subsequently Sir Joseph Lister. He was at that time advised to take a holiday, and for this purpose interrupted his legal studies and other work by taking a trip to the Canaries. He returned home apparently in good health, and no one could have guessed when he was performing his duties at the University that there was or had been anything seriously wrong with him. There was, however, an access of decidedly cerebral symptoms about six weeks before his death. He saw his chief at the Local Govern-

ment Board, Dr Buchanan, who advised him to consult Drs Ferrier and Hughlings Jackson, who diagnosed cerebral tumour. He was recommended to take six months' leave of absence, and had gone to Dublin to make arrangements with a friend for a cruise in the Mediterranean. The day after his arrival, and when he appeared to be in good health and spirits, he was attacked by paralysis of the right lower extremity; this was followed by intense pain in the head; coma supervened, and he died on the 26th February at the age of 44.

Dr Page was twice married. He has left a widow and seven children to mourn his loss, and a whole profession to lament the premature cutting short of a life of great usefulness and much promise.

THE LATE HERMANN BREHMER.

A FEW days after the brief analysis of the Görbersdorf reports was written, the news of the sudden death of Dr Herman Brehmer reached us. It is with no affected sorrow that we deplore the loss of the pioneer of the special department of therapeutics with which his name has been honourably associated. As has been fairly remarked, he may be called the father of the "sanatorium" method of treating phthisis. It is now some thirty years ago since Hermann Brehmer established the sanatorium of Görbersdorf, in the neighbourhood of Breslau. Görbersdorf lies in the mountains, nearly 2000 feet above sea-level, and here, in hermit-like fashion, Dr Brehmer gave practical effect to his simple faith in the efficacy of good air, wholesome food, and a carefully considered regime of exercise and rest. His example has stimulated some to imitation, some to derision, but there can be no question that the name of Hermann Brehmer has found a lasting place in the annals of pulmonary therapeutics.

PUBLICATIONS RECEIVED.

- THOMAS BRYANT, F.R.C.S.,—The Bradshaw Lecture on Colotomy, Lumbar and Iliac. J. & A. Churchill, Lond., 1890.
- D. BERRY HART, M.D., etc., and A. H. FREELAND BARROUR, M.A., B.Sc., M.D., etc.,—Manual of Gynecology. W. & A. K. Johnston, Edin., 1890.
- ALFRED W. HUGHES, M.B., C.M., etc.,—Nerves of the Human Body. E. & S. Livingston, Edin., 1890.
- JOHN MARSHALL, F.R.S., etc.,—The Morton Lecture on Cancer and Cancerous Diseases. Smith, Elder, & Co., Lond., 1890.
- WM. MARTINDALE, F.C.S., and W. WYNN WESTCOTT, M.B.,—The Extra Pharmacopœia with the Additions introduced into the British Pharmacopœia, 1885. H. K. Lewis, Lond., 1890.
- Medical Annual and Practitioner's Index, 1890. John Wright & Co., Lond., 1890.
- Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Young J. Pentland, Edin., 1890.
- Saint Thomas's Hospital Reports. Vol. 18. J. & A. Churchill, Lond., 1890.
- F. M. SANDWICH, F.R.G.S.,—Egypt as a Winter Resort. Kegan Paul, Trench, & Co., Lond., 1889.
- C. E. A. SEMPLE, M.B., etc.,—Essentials of Forensic Medicine, Toxicology, and Hygiene. Henry Renshaw, Lond., 1890.
- J. BLAND SUTTON,—Evolution and Disease. Walter Scott, Lond., 1890.
- FRED. TAYLOR, M.D.,—A Manual of the Practice of Medicine. J. & A. Churchill, Lond., 1890.
- H. C. TAYLOR, M.D.,—Wanderings in Search of Health. H. K. Lewis, Lond., 1890.
- Transactions of the American Association of Obstetricians and Gynecologists. Vol. 2. Philadelphia, 1889.
- PROF. VULLIET et LUTAUD,—Leçons de Gynécologie Opératoire. A. Maloine, Paris, 1890.
- E. F. WILLOUGHBY, M.D.,—The Natural History of Specific Diseases. H. K. Lewis, Lond., 1890.

Part First.

ORIGINAL COMMUNICATIONS.

I.—DISEASED CRAVINGS AND PARALYSED CONTROL: DIPSOMANIA; MORPHINOMANIA; CHLORALISM; COCAINISM.

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(Concluded from page 809.)

A PHYSICIAN in practice meets with many cases in which there are neither cravings for drink, for morphia, for chloral, nor for cocaine, but yet where morbid and hurtful cravings exist the same as those in their essential nature, but with different objects. Accompanying such cravings, and evidently the results of the same morbid brain condition, we find the paralysed inhibition that existed in the "diseases" I have shortly described in the former articles. As I endeavoured to point out in the first of these articles, we must not look on any of these "manias" as a distinct disease by itself, but rather as an accidental variety of the same great class of *Inhibitory Neuroses*. Whether a patient is a dipsomaniac or a morphinomaniac may be the mere accident of whether he had been exposed to the temptation to drink in youth, or had had morphia administered to him for sleeplessness or pain. I am quite sure I have seen very many patients who would have become either dipsomaniacs or morphinomaniacs, and I have seen many who at different times of their career had been both, or were subject to a vague but overmastering morbid craving which either drink or morphia satisfied, and they took the one that was handy at the time. We saw that the chloralist L. M. (p. 805) took to whisky for a short time before his final breakdown, and that the cocaineist P. R. (p. 808) took morphia as well as cocaine. Nothing, in fact, is more common than for mixed cravings to exist, and few patients labouring under any of these "manias" will not, when the supply of their special drug is cut off, take to any of the others they can get at the time. All who have had to do with dipsomaniacs know that—failing whisky—chloroform, ether, turpentine, or anything else of that nature, is eagerly sought for and taken. I have heard of two cases where a paraldehyde craving was established, in spite of its bad taste and odour, as the result of its being given for insomnia; and I have now a lady patient who, when run

down in nerve has on various occasions had cravings for wine, whisky, eau de Cologne, bromide of potassium, and chloral, all of which she has taken to excess, and now is developing a craving for the sulphonal which I give her in 10-grain doses for insomnia.

We must look beyond the intoxicants to the brain that craves intoxication. There are many other things that men crave besides the intoxicants mentioned, and they often crave them morbidly and lose their power of inhibition over their desires. The fiercest conscious craving of higher animal life, after that for food—and not always after that—is the sexual nisus in the male. This often enough becomes morbid in strength, and passes from under control, while it also becomes in some cases perverted in its object and transformed in innumerable morbid ways. It would take a treatise to elucidate even a tithe of what we at present know of morbid reproductive craving and loss of sexual control. Apart from technical insanity, the physiological psychologist who tackles this unsavoury but most interesting subject has a great work before him. To say that the normal reproductive craving has created a vast amount of a great literature and poetry; that it has founded sects, religious and irreligious; that it has been the occasion of fierce wars, and that it well-nigh dominates humanity in its early ages, is simply to state facts. No wonder that this craving becomes diseased in unstable subjects. No wonder it is mixed up in the dipsomania of adolescence with the drink craving, whose early bouts are often indulged in the brothel. Little wonder that it seeks objects and outlets quite apart from its legitimate object of reproducing the species. The gratification of this craving afforded by the promiscuous sexual intercourse of prostitution has had many defenders or apologists, chief of whom of recent years is Mr Lecky, in a well-known passage of great eloquence and power. If we regard prostitution, not from the social point of view, but from that of inhibition and craving, I think we cannot but conclude that its effects are evil. It tempts where no temptation is needed; it excites cravings where they are strong enough already; it diminishes control where control is hard enough to practise. That surely breaks a law of Nature which gratifies a physiological craving apart from the natural object of it. That which entirely parts sexual enjoyment and the reproduction of the species cannot surely be defended on physiological principles. It is certain that the cases of complete loss of control over sexual desire, which are common enough, are frequently rendered uncontrollable through the brothel; though they occur, too, through evil heredity, through want of normal outlets for the social instincts, and through evil habits other than sexual. Many of them also show loss of control over the drink craving. There is no physician in city practice but knows dozens of them.

Masturbation is an evil practice, the craving for which becomes often enough uncontrollable. Its degraded subjects say they cannot

resist it, that it paralyses their volition, dominates their imagination, and often becomes a sort of automatic habit, performed only half-consciously. It is almost always set up in or before adolescence, and I have times without number heard strong men of mature age, whose self-control was in no other respect impaired, deplore their weakness of will in giving way to this habit. It unquestionably has the frequent effect of lessening or almost abolishing the gratification from sexual intercourse and diminishing the desire for it. In the early stages of many forms of insanity it is common enough for the married of both sexes to gratify the sexual nîsus by masturbation instead of intercourse. It affects, too, injuriously the whole of the social instincts, diminishes their pleasures, and sometimes perverts their objects. The following case is a very typical one, showing how volition is paralysed by indulgence in this vice :—

A. B. C., æt. 20, of a nervous disposition, small in size, and of the nervous diathesis ; began to masturbate five years ago, but did his professional work, and passed his examination. He went to live in lodgings alone. He now thinks that if he had gone to board in a cheerful family he might have been enabled to lead a more natural life. As it was, he began all right, but found that continuous study muddled his brain, made him feel silly and low-spirited, and seemed to paralyse his volition and sense of duty, and he took to masturbation badly when in that exhausted condition, sometimes without even having any very strong craving. If he went out in that state, and met a bad companion, he would go and get drunk and go with prostitutes, sometimes even without any sort of strong craving for drink or women. When his brain got exhausted in its energy from any cause, his sexual desire or that for drink overcame him, he having then no will of his own to resist either a desire from within or a temptation from without. When he went home for his holidays he only practised masturbation twice in four months, and he otherwise lived a moral and natural life. He is now all the time depressed, unsocial, irresolute, and quite unfit for intellectual work. His pulse is weak, his extremities cold, his pupils dilated ; he is thin, and his muscles flabby ; he looks wanting in energy. I recommended his leaving town at once and going to the country and living a farmer's life for a year, eating unstimulating diet, working, walking, fishing, shooting, riding, and cultivating earnestly control in all forms and the sense of duty, always making a programme for his day's work and amusement, and carrying it out resolutely. He had tried local treatment, bougie passing, etc., for the masturbation, with no avail whatever.

To treat of the loss of control and diseased sexual cravings, met with sometimes in cases who have taken to the crimes of sodomy, intercourse with children, and bestiality, is almost impossible even in a medical journal, that may come into the hands of lay readers. This is quite certain, that such perversions of the sexual nîsus exceed even masturbation in the utter wreck of control and in the

brutal cravings they set up. There are well-authenticated cases on record, and I myself have met with several, in which there seemed to be a congenital perversion of the sexual desire and a congenital non-development of control over such perverted cravings, so that from the earliest sexual age, in one man, boys excited the sexual appetite instead of girls, and in another, young immature girls did so, while women of full maturity were positively repulsive, and her presence could scarcely be even tolerated when he was alone with his young and beautiful wife after marriage. Such unnatural perversions and cravings are always accompanied by loss of normal inhibition over them.

The last kind of craving which is essentially connected with the reproductive function is that where the sexual nîsus is transformed entirely, and becomes a homicidal or a suicidal uncontrollable impulse. I think few can doubt that the murders of "Jack the Ripper" in Whitechapel last year came under that category; and yet it seems almost a contradiction in terms to speak of that monster and a morbid lack of control, for if cunning, scheming, and extraordinary wisdom in the selection of the time and place for his crimes implied control, as it did of one kind, then he had it far above ordinary humanity. Still he had evidently a morbid craving which he certainly did not control, and which all analogous cases would seem to prove was a perversion of the sexual instinct.

I once had a patient under my care who before he became actually insane, and afterwards as one of the phases of his insanity, exhibited many curious symptoms illustrative of paralysed control and diseased craving. When doing his ordinary work previous to his first attack, he was often conscious of a sudden loss of control over his actions, so that he did not know what he might do next or might not do. If he then saw glass he was tempted to smash it; if he saw a person whom he was not fond of he could not feel in the least sure he might not assault him; if he saw anything he liked he could scarcely resist appropriating or buying it. He bought at various times full Highland dress, jewelry, clothes, and trunks, which he did not want and never used; at the same time he had the feeling that he could not then do many ordinary acts which his duty called on him to do. He used to shut himself in his room when he felt these "moods" on him, locking the door, and often trembling with fear and actually weeping lest he should do any act that would be ridiculous or criminal, and bring on him public disgrace. After this state developed into insanity, one phase of his malady was to stand stock still for hours, never speaking; after this had passed off he would tell me that no power within or without him could at these times have stirred up his volition, and that he could have seen his dearest friend killed without having the power to move a muscle or speak a word to save him. Then the cravings and morbid impulses would get the upper hand, and he would drink to excess, or assault those near him,

or break things, or do indecent or improper sexual acts without the smallest power of controlling his conduct. The case illustrates the clinical fact that insane inaction is commonly very near insane impulse, the one being the complement of the other.

The following case was one which illustrated the gradual loss of control in several directions without intellectual impairment; this loss of control being an aggravation of the patient's natural temperament, till the point was reached at which his conduct indicated disease, and medical means had to be taken for the patient's good and recovery:—T. U. V. had been a quick boy, and a very bright, witty, social, and vivacious youth. There seemed to be no mental disease in the family, but some eccentricity; and drunkenness had prevailed in the grandparents' generation. All the family were extraordinarily thin; they had no reserve capital in the shape of fat, even when well. He too had always been thin. His two marked peculiarities from boyhood had been sleeplessness and a disinclination to face difficulties, to do disagreeable things, or to carry out things contrary to his inclination. He was, in fact, morbidly "self-indulgent." He was perfectly correct in his life, both as regards masturbation and sexual intercourse,—in fact, he seems to have had less than the normal sexual nusus for his age. He was æsthetic, fond of literature and poetry, and quick at business. About 20 he began to smoke, and soon smoked to excess. By-and-by after some years he would also drink too much at times, taking beer chiefly. He drank in an odd way; he seemed to have not so much a craving for it in excess as a want of power to stop when he began to drink in company. He would go on drinking in a sort of automatic way, and the same was the case with smoking to a certain extent. His habits began to be eccentric, especially in the matter of getting up in the morning. He would not go to business for days. Duty seemed gradually to lose its power to influence him, sometimes he would lie in bed till the afternoon for days at a time. When drinking, his appetite would evidently disappear, and he would take almost no food for days. He knew quite well he needed it; and if any one applied pressure on him to eat he would do so freely. There happened to be no one with influence over him to get him to live in a physiological way, so he was allowed "to slide" into the most irregular mode of living. For two years he smoked 300 cigarettes a week and four ounces of tobacco besides. He seems to have almost ceased to sleep. He has lately only gone to business in spurts, when he would do a lot of work, and do it very well; he would lie in bed till towards evening, then go out to some place of amusement for a time, and have a good deal of beer, and return home very late and read novels, and wander about his room all night. He got gradually thinner; he had tobacco amaurosis, his tongue got foul, and his circulation very feeble indeed. His volitional power was more and more impaired, so that he became almost an automaton, doing what he craved at the moment,

going and doing what he had begun by a sort of passive habit, resisting nothing, originating nothing. Needed at business every day, he would not turn up at all, or only very late, or occasionally. If he ever did get up in the morning, it was commonly on a holiday when no business was doing, and then he professed himself ready to begin work; all this time he admitted the absurdity of his conduct, sometimes deplored it, but seemed quite unable to mend it so long as he was his own master. At last things got so bad that there was a real danger of his dying from exhaustion. Once he took no food for three days, just because he felt no appetite. Some one who had influence with him told him to begin eating, and he would scarcely stop. Once he stopped tobacco and drink for three weeks because his doctor vigorously persuaded him to doing so. He at last so strongly recognised the fact of his own volition being paralysed, that he put himself under the rule of his doctor. Massage with suitable diet was recommended for six weeks to put on flesh; then that he was to go and stay with a medical man whose duty was to take the control of his life, restore normal habits, and cultivate his power of control. All this was done with his intellectual assent, but passively so far as his will was concerned. He would certainly have died of the consequences of his paralysed volition and morbid cravings if let alone.

In the stage of brain disturbance preliminary to actual insanity, it is most common for patients to be conscious of a diminishing power of control. They have desires to scream, to run, to talk loud, to laugh, to swear, to be unreasonable, to annoy others, to thwart, to strike, or to pinch, which they either cannot control or have the utmost difficulty in checking. I had a lady patient once who used to pinch her husband and children black and blue when in this stage. Some patients who never had any sort of desire for drink will take it to excess in this condition. I have a lady patient suffering from a variety of melancholia in which her reasoning power is all but unimpaired, but who has the most terrible craving to destroy her life, so that she begs her hands may be tied, and often gets her fellow-patients to tie her wrists together with a tape or a handkerchief. I had another very interesting case of a lady whose psychological history was shortly the following:—She was a handsome, gay girl, whose mental constitution was such that she always was fanciful, and had a difficulty in distinguishing the subjective from the objective. She was, in fact, a physiological liar. She married young, and had to change her whole mode of life, and breathe a different mental and moral atmosphere. She had children fast. In two years she had become a confirmed dipsomaniac, not as, I believe, a vicious drunkard at all, but she laboured under a true disease—a paralysed control with a very active craving. She took the drink to strengthen her control and her resolution, and to enable her to do her duty. The usual moral twist showed itself, cunning and deception being freely practised.

How can a lady moving in good society tell the truth if she drinks? Her maternal instincts were also lessened. After some years the drink craving ceased, but she then showed marked intellectual insanity. She had delusions of many kinds, and her conduct became markedly peculiar. I have myself little doubt that while in the dipsomaniacal stage of her brain disease there would have been discovered some intellectual damage as well as the inhibitory and the affective symptoms, if her state had been closely analysed. But in the stage that followed the dipsomania, the intellectual power was clearly perverted, and she had hallucinations of sight and hearing of a peculiar kind, while her affective faculties were impaired in a marked degree. The sequence of symptoms from first to last was, to my mind, an example of a natural evolution of disease in a certain quality of brain, the weakest point of which from the first was its inhibitory power. The stages were the following:—The first childhood, with uncontrolled and very strong imaginative faculties, so that the real and the imagined were not clearly distinguished. The second girlhood, during which gaieties of all sorts were the whole aim and object of life, the moral or controlling faculties not being then developed or properly evolved at the time they should have been. The third, that of early married life, during which, for outward appearance' sake and against the grain, duty was taken to, not because the sense of it was felt. There was control then exercised, but its sources were not deep or secure. It needed some outside crutch. The fourth stage was that of dipsomania, when an alcoholic stimulant was taken to and relied on to resist nerve weariness, and to give strength for the unequal fight she was fighting. The processes of gestation and parturition would accentuate the exhaustion, and by their reflex effect on an unstable brain help to diminish its inhibitory power. The fifth stage was that of intellectual disturbance, consisting of a belief that she was "acted on," and made to do things by others against her will, and a tendency to mistake her thoughts for words spoken by others. The fact is she had then no "will" left, and no power of distinguishing the subjective from the objective. The most interesting part of the fifth stage is that it was accompanied by a loss of any craving for alcoholic stimulant. Her teaching, her upbringing, her recollection of the drinking part of her life, all united in bringing the evil of her conduct before her, and these accusing thoughts and feelings appeared to her as accusations by voices heard from without. The whole case is one full of instruction to the medico-psychologist. It shows for one thing very clearly, that morals must have a brain basis, just as technical sanity must have. It also shows the thin border line between paralysed control and intellectual delusions in certain qualities of brain. I think it will be generally conceded that an intense realistic imagination is apt in many cases to be conjoined with small power of control. Perhaps this is apt to be the weak point

in the artistic temperament in all its varieties. The law of compensation comes in here as everywhere. If a man has one good quality strongly, he is, I fear, apt also to have some weak points to make up for it.

There are some cases where the loss of control is in one direction only, while it exists in a high degree in all others. The typical dipsomaniac is commonly a "poor creature" all along the line. But it is certain that an irresistible craving to gamble, for instance, may exist in great natures, and may coincide with remarkable intellectual qualities, with the highest sense of honour, and with unusual power of control in all other respects. The stories of so many of the great statesmen of last century illustrating this cannot all be unfounded. The craving to gamble to excess seems to be one to which all races, from the highest to the lowest, are subject; and all men, from the philosopher down to the imbecile. In a way it is a nobler vice than any of the cravings we have been considering. It is more intellectual and less animal than any of these. Many persons are so constituted in brain that they must have some "excitement" in some shape or other. In fact, all sound and normal brains crave stimulants to some extent. It is a law of their existence. The question is always—What is the proper physiological and healthy stimulus to be employed to rouse the normal excitement? Is it to be social intercourse? or happy family life? or some reasonable amount of gaiety not too often repeated? or political activity? or rousing religious services? The excitement and stimulus of being in love must come at some period and in some form to all healthily constituted youths and maidens. It is perfectly possible, in the case of persons whose inhibition is weak, for any one of these harmless and physiological stimuli to become a strong craving and to run to excess, so that control becomes difficult. It is very common in the early stages of simple mania, which is usually characterized by a partially paralysed control, for patients to show this by doing perfectly legitimate and simple social acts to excess. I knew one gentleman who, when about to take such an attack of mania, always showed it by calling on all his friends at unconventional times, and never knowing when to leave. His desire for the stimulus of social intercourse was simply not controlled at the time by the conventional rules of his class, which at other times had been powerful enough to influence him. In this stage of mania patients cease to be able to control their own power of attention too.

Paralysed control often takes the form of morbid indecision. In the early stage of melancholia, before depressed emotion comes on, patients constantly complain of this together with a loss of control over their fears. They cannot come to a conclusion quickly, and especially they cannot act on it; and they find themselves conjuring up consequences and risks, that during normal periods of their lives they would never have thought of. This is, to a slight extent,

normal after the climacteric in both sexes, and in some persons it is then very marked indeed. To-day in visiting my patients I came upon a lady who had been very energetic mentally, and whose occupation had been a branch of art. She had passed through the more active stage of an attack of melancholia, and was coherent in speech, and almost reasonable in conduct. She was sitting at a table with a pen in her hand, and ink, and a blank sheet of paper before her. The attendant said, "Miss — has wanted writing materials every day for a week, and when she gets them she won't write a word, but sits for an hour as you see her." I said, "Why don't you write your letter, Miss —." I don't know how to begin, doctor." I told her how to begin. "But I don't know which of my friends to write to." I sat down and tried my best to induce her to write the word "Edinburgh" at the top of the page: neither I nor Dr Robertson could get her to do so. She said, "No, I can't possibly do it." Then I said, "Now, make an outline of my face,"—a sort of thing she had been fond of and clever at. She said, "I can't do it with a pen." I gave her a pencil. She succeeded, after an evident exercise of all her available power of control, in making only two lines, and could do no more. This was an example of a completely paralysed control over actions of the simplest kind, which in health would have been done at any time almost automatically, without the least effort. She seemed to have no diseased cravings of any kind. I think few of us but have felt when ill or tired, in a minor degree, such lack of power to originate action—at all events sufficiently to enable us to understand and sympathize with Miss —'s condition. The man who "can't make up his mind" on simple matters is to that extent lacking in the power of control.

The following case is one that illustrates well the paralysis of control over muscular action, that uncontrolled action not being purposive, not being accompanied by any desire to commit suicide or to injure others. P. Q. R., æt. 53, unmarried, a hard working, intelligent, and very self-controlled woman, began to be restless and unsettled about two years ago, this being accompanied by some amount of depression, but no overmastering mental distress. After a change to the country she seemed to recover, but the morbid condition came back when she resumed her duties. Without warning she one day attempted suicide, and by her own wish was thereafter sent to the Asylum. On admission she was calm and reasonable, but somewhat depressed, very sleepless and very dyspeptic. She was thin and generally run down. The most striking peculiarity in her case is this, that during the day she feels restless, and has the inclination to move her limbs about, but is able to control this to a large extent, and to work, and walk, and take her meals with others; but when she goes to bed, and especially when she awakes after her first sleep, she at once begins to throw her limbs about in all sorts of purposeless ways, rolling about, grimacing

and exercising every muscle, as the attendant says, "like an eel in hot water." She does not scream, or cry, or speak, but when spoken to she can cease to move, and talks quite sensibly, saying she "cannot help it," that she has an irresistible inclination so to move her limbs, and that doing so is in some way a relief to her. Those movements will go on for hours during the night, and are followed by no conscious sense of muscular fatigue. It is a "muscular hyperkinesia," apparently an excitation of the cortical motor centres unconnected with ideation or feeling, occurring at night just as a febrile delirium occurs at night, or as a senile restlessness with excitement occurs at night. Motor depressants like hyoscine diminish the movements after each dose, but she is none the better afterwards.

The inhibitory function gets weaker at night in all directions. Man, in fact, at night becomes more automatic, more emotional, and very much less volitional than during the day. Courage fails at night, while gross, unreasoning superstitions then rise up to the consciousness of "strong minded" men. The moral sense is always at a lower ebb at night than during the day. Groundless fears come up before the mental vision then; while it has, of course, always been the season for ghosts and apparitions. The subjective then tends to become the objective. Remorse then stalks scourge in hand—

"Art thou not, fatal vision, sensible
To feeling as to sight? Or art thou but
A dagger of the mind: a false creation
Proceeding from the heat-oppressed brain?"

It was at night that Macbeth was thus befooled by his brain—

"Mine eyes are made the fools o' th' other senses."

Fear then overcame him—

"How is't with me when every noise appals me?"

It was when night was "almost at odds with morning" that the banquet scene took place, when Macbeth's courage and his sanity temporarily fled, and he had hallucinations of hearing and sight—

"Thou canst not say I did it; never shake
Thy gory locks at me."

And this in a man who, during the day, could not be "taint with fear." The real never moved him—

"Fear not, Macbeth; no man that's born of woman
Shall e'er have power on thee."
"The mind I sway by; and the heart I bear
Shall never sag with doubt nor shake with fear."
"I will not be afraid of death and bane;
Till Birnam forest come to Dunsinane."

The psychology of the night has yet to be written in a scientific sense; but there are plenty of materials for it in the dramatists, the

poets, and the greater writers of fiction, as well as in the medical books. Most men, alone, in the middle of a wood in a dark night, seem to go back suddenly and quite unaccountably to a less evolved stage of humanity than that to which they have attained during the day. They are conscious of coming, to some extent, under the dominion of the fears of children and the superstitions of savages. The plain teachings of reason, with the utmost efforts of volition to back them up, cannot fully dissipate such feelings. Control is exercised by a much greater conscious effort than during the day. We have constant experience as physicians of the disturbing effect of the night in disease on most of the higher brain functions, especially the inhibitory power. The patient suffering from mania is always most restless at night; the patient suffering from continued fever then only becomes delirious. It is then that the child with a febrile catarrh becomes delirious. It is then that the neurotic child takes his "night-terrors" without fever at all. The case of senile mania that is only confused and restless during the day loses control entirely at night, and then becomes perfectly unmanageable. Our profession pays dearly for this psychological peculiarity of humanity. I am only surprised that some of the sufferers have not drawn more attention to it, and given us more careful psychological analyses of it. Has not every country doctor had to turn out of bed and drive many weary miles, many a stormy night, not because his patient was worse then than he had been on the previous day, but because he and his friends had begun to suffer from that nocturnal loss of inhibition, that nightly diminution of control which are so closely allied psychologically to the paralyzes of control in dipsomania and morphinomania?

We may conclude, therefore,—

1. That many morbid and hurtful uncontrollable cravings exist apart from those for drink, morphia, chloral, or cocaine.
2. That there is a distinct class of "Inhibitory Neuroses" that may be accompanied by little intellectual or emotional disturbance. The objects of the morbid cravings are often accidental.
3. Some of the most morbid cravings and examples of loss of control are found connected with the reproductive function, in regard to which, too, perversions of object are also very apt to accompany such morbid cravings.
4. For the existence of many cases of such reproductive loss of control prostitution is probably responsible, and the unnatural habit of masturbation for many more.
5. The reproductive instinct is in some cases morbidly transformed into uncontrollable impulses towards suicide and homicide.
6. Cravings to break and destroy, accompanied by little intellectual disturbance, that cannot be controlled, are often met with.
7. The state of morbid inaction is often closely allied to morbid impulse, one sometimes taking the place of the other.
8. There are cases where there is a morbid loss of control over

general conduct in ordinary matters, and cravings to do quite harmless acts.

9. There is a morbid condition of brain automatism, apart from hypnotism, in which there is little or no power of inhibition, but at the same time no active cravings, the conduct being regulated by the will of others, or by chance suggestion from without or within.

10. Loss of control often precedes for some time the other mental symptoms of an attack of active insanity.

11. Inhibition may be lost in one direction only, while in most others it may be very strong, gambling being often an example of this.

12. All brains must have some "excitement" to keep them healthy, the important question being how to select the kind of excitement that will not lead to morbid craving, and that can be easily controlled.

13. Morbid indecision may be an example of paralysed control.

14. We may have morbid and uncontrollable muscular action, not purposive, and not attended by ideation or emotion at all.

15. It is a fact in man's medical psychology, that control is almost always lessened at night or in the darkness as compared with the day, the night being the time for morbid indecision, fears, superstitions, and a tendency to mistake the subjective for the objective, his higher powers then undergoing a process of partial "dissolution,"—man, in fact, is a less evolved being as regards his inhibition at night than during the day, and his brain is then more liable to disturbances of its controlling functions in disease.

II.—THE PRESENT EPIDEMIC OF SO-CALLED INFLUENZA.

By DAVID J. BRAKENRIDGE, M.D., F.R.C.P.E., Physician to the Edinburgh Royal Infirmary, etc.

(Read before the *Medico-Chirurgical Society of Edinburgh at the Discussion on Influenza, March 6th, 1890.*)

MR PRESIDENT AND GENTLEMEN,—It has been felt that it would be well not to allow the present epidemic of so-called influenza to pass over without some attempt—not merely to produce one or two papers on the subject, but, as far as possible, to gather up the experience of the profession in Edinburgh regarding it, and to arrive at some definite conclusions as to the clinical features, etiology, pathology, and treatment of the disease.

The following remarks are unfortunately not, as I had hoped they would be when I promised to read this paper, based upon carefully taken records of cases observed in the Royal Infirmary; for it is a remarkable fact that, during the whole progress of the epidemic, not one single typical case of the prevailing disease has been admitted into my wards. Certain severe cases of lung disease there certainly have been, which may have originally developed

out of some such influence; but these were of little or no value in connexion with a study of the so-called influenza.

This dearth of illustrative cases in the wards of the Royal Infirmary cannot be accounted for by the fact that a special hospital was provided by the town for the reception of such cases; for that hospital has remained until now without a single inmate—a circumstance much to be regretted, as a scientific committee, appointed by the Council of the Royal College of Physicians, has been in readiness to take advantage of the first occupant and his successors, with a view to the settlement of some of the vexed questions connected with the disease.

I am obliged, therefore, to avail myself of the hasty notes which I have been able to take of cases which came under observation at a time when I was overworked on account of the epidemic.

As I have seen in one way or other 236 cases, the facts I have noted may have some value. At any rate I offer them for what they are worth, and as a basis for discussion.

The prevalence and severity of the disease among the rich and well-to-do, and the comparative immunity enjoyed by the poor and ill-conditioned, are points to which I will revert further on.

For the foregoing reasons I cannot give statistical tables which would be of any scientific value. The excellent report of Drs Elkin and Robertson of the outbreak of the disease at Morningside Asylum fortunately supplies such, and it is to be hoped that it will be complemented by similar reports from some of the other large public institutions. The following remarks are based upon notes taken of the more important facts observed in my own practice alone, and embody the conclusions I have arrived at from the observation of a large number of cases.

During the last weeks of October 1889 I met with a few cases of disease which puzzled me: feverish attacks of short duration, accompanied by headache, loss of appetite, and weakness. In some of these catarrhal symptoms were present, in others they were entirely absent, and I could find no explanation of the symptoms.

In the first week of November I had fifteen such cases under treatment, and I became convinced that I was dealing with a new and distinct form of fever, which I had not met with or read of before. This belief I expressed to many at the time, including several medical men. One of the very first typical cases occurred in the house of a medical man. The patient, a little boy, aged 4, became ill on the 29th day of October. His symptoms were somewhat sudden in their onset. They consisted of considerable fever, which lasted for one day, severe headache, pain in swallowing with only slight redness of the fauces to account for it, pains in the back and limbs, complete loss of appetite, and great prostration, which lasted for a considerable time afterwards, and was quite out of proportion to the degree and duration of the fever. At this

time no reports had reached this country of the epidemic in Russia and other places.

Of the first fifteen cases that occurred during the first week of November eleven were children and four adults. Among the children there was a decided tendency to a peculiar form of catarrhal pneumonia, which was not met with among my cases later in the epidemic, unless in a few instances as the result of exposure to cold. To this pneumonia I will return further on. The prevalence of this complication among the earlier cases I attribute to the fact that, at that time, the peculiar sensitiveness to chills from the slightest exposure, which was afterwards seen to be a marked feature of the disease, was not recognised, and that extreme care to avoid the slightest exposure to risk, which characterized the treatment in the later periods of the disease, was not enforced.

During the whole of November and December I had a succession of such cases; they did not begin to become markedly more numerous until the fourth week of December, and they reached their maximum about the last fortnight of January 1890, when I had at one time over fifty cases under treatment.

The clinical features of the disease have varied very much in the details in different cases, but there has been a striking similarity in the main features in the great majority.

Usually *the disease commenced somewhat abruptly*, in some cases quite suddenly, in others more gradually. The first symptoms in most cases were severe frontal headache, pain in the eyeballs, in the back, and in the legs, and, very early, a feeling of giddiness and incapacity to fix the attention, but no great depression of spirits. These symptoms were usually associated with a feeling of malaise and slight shivering, rarely any severe rigors.

The temperature rose quickly, so that, within an hour or two after the onset of the attack, it was about 100°, and, in some cases—especially in young subjects—it rose as high as 103° or 104°.

During the first night the patient was restless, sometimes slightly delirious, sometimes he talked in his sleep, or merely had a busy night, with light and not unpleasant dreams. Next morning there was *no appetite for breakfast*, and for the first few days *little desire for any except the lightest kinds of food*, such as milk, chicken soup, fish, game, or such like in small quantities. This anorexia was always most marked in the mornings.

On the second or third day—more rarely from the first—the patients complained of *great soreness and tenderness over many parts of the body*, the feeling being exactly as if these parts had been severely beaten with a heavy mallet. When the thorax was the seat of this bruised sensation, the movements of respiration became very painful, and the pain closely resembled that of pleurisy. In no simple case uncomplicated with pneumonia were any signs of pleurisy discovered.

In many cases a *peculiar pain* was complained of, *which, starting from the upper lumbar region, passed forwards in the abdomen, as it were, through the liver towards the stomach.* In some cases it was among the earliest symptoms, in a larger number it commenced on the second, third, or fourth day. It varied greatly in intensity. When a prominent symptom, it was a *dull, aching, sickening, often unbearable pain*—a veritable angina. It fortunately seldom lasted longer than a few hours—rarely for a whole day.

The temperature in almost all cases fell to the normal within the first or second day.

Very soon—even in cases of moderate severity—the pulse showed *signs of weakness and unsteadiness.* It was moderately quickened; but what struck me most was a tendency in many cases for the radial pulsations, on slight exertion, and even in some without exertion, to *become unequal in force and rhythm.* So marked was this tendency in certain severe cases, that it was necessary to prevent the patient even sitting up in bed. In a few cases neglect of this precaution led to alarming syncope.

This weakness and instability of the pulse passed off in many cases very quickly on the cessation of the general symptoms of the disease, especially in those cases in which convalescence was rapid. In many patients the pulse remained weak, and easily quickened, for several weeks after convalescence commenced.

The urine was usually for the first few days very high coloured and scanty, rarely it contained a small but appreciable quantity of albumen.

In no case were the conditions of the urine or the symptoms such as to suggest the existence of a true nephritis.

In two cases, in which the attack was sharp from the first, *I had the patients weighed, and found that they had lost 10 lbs. and 7 lbs. in 5 and 3 days respectively.* I had no opportunity of weighing my other patients, but it was clear in many other cases that a similar falling off had taken place.

There was noticeable in nearly all my cases, except the mildest, *a very great tendency to fluctuations in the patient's subjective feelings;* for some hours he would describe himself as feeling quite well, and then very quickly, almost suddenly, he would become restless, and complain that he felt uncomfortable, depressed, and ill. In some instances these unpleasant sensations were associated with feelings of feverishness or cold perspirations. For these alternating sensations no cause could in most cases be discovered.

In a few cases, during each recurrence of these feelings of malaise, there was a rise of temperature, sometimes very slight, at other times considerable, on one occasion to 102.4°.

During the whole illness *the sensitiveness to draughts or changes of temperature was extreme.* Even when the patient was surrounded with curtains or protected by screens, the leaving of a door ajar in

the room almost immediately caused an attack of sneezing or coughing, which ceased when the door was shut. For this reason the symptoms were often temporarily aggravated, or a relapse caused, by going for a short period into a quite adjacent well-warmed room, even when the greatest care was taken to avoid exposure to difference of temperature.

A few of my patients complained very early in the attack of *slight sore throat, others of considerable pain and tenderness in swallowing*. Examination of the throat in these cases revealed either trifling redness or gave a negative result. *There was no marked running at the nose in any of my cases*.

In most cases, usually between the third and fifth day of the disease, a *peculiar and characteristic cough* developed. This was dry, paroxysmal, and accompanied with little or no expectoration. During the intervals between the fits of coughing there was no feeling of discomfort in the air passages. The cough came on suddenly, very much as it does in a paroxysm of whooping-cough, and often, as in the latter disease, it ended in retching and the expectoration of a little tenacious mucus. The slightest draught in the room often, as I have already said, brought on a fit of coughing. This paroxysmal cough persisted in many cases long after convalescence had been established.

There was a *marked tendency to disturbances of the alimentary canal*. Throughout the disease the stomach and bowels were in a weak, highly sensitive, and irritable condition. There was *loss of appetite and a tendency to constipation*, and, so long as the diet was light, small in quantity, and easily digested, *nothing more*.

But if any but the most digestible food was taken, severe abdominal pain, retching, vomiting, or diarrhoea—sometimes all of these—resulted. Eating oranges or grapes in many instances produced such results; and, in others, the same effects followed the administration of some very simple purgative, such as cascara sagrada or Gregory's powder. The state seemed to be one of atony and irritability.

Certain eruptions appeared in a considerable number of cases during the course of the disease; but none of these can be regarded as specially distinctive of it.

They occurred at various indefinite periods both during and after the disease. The eruptions resembled a number of well-known affections of the skin. The most common was a papular rash in some cases very like that of measles, in others resembling an erythema papulata; in many the characters were those of urticaria. Mixed forms of eruption were noted in a good many. As a rule, the eruptions were accompanied with itching and occasionally pain; in some they were followed by slight desquamation. The urticaria most frequently occurred on the face; the measley rash on the face, body, and extremities; the erythema papulata on the extensor surfaces of the forearm and hands, legs and feet—occasionally on

the palms of the hands and soles of the feet—and sometimes on the abdomen alone.

Various forms of herpes tended to occur. These were most frequently seen in the neighbourhood of the lips and nares: in one case herpes zoster in the upper dorsal region, including the right arm, was met with.

Congestion of the conjunctivæ was present in a good many cases, and in one or two this ended in slight suppuration.

There was a *marked tendency during and for a long time after the attacks to various forms of neuralgia*, and in many cases to *pain and occasionally some swelling in and below the knees and other joints, as well as hyperæsthesia and hyperalgesia in various parts of the body.*

Before passing from the typical clinical picture of the disease, I wish to direct very particular attention to the following fact, which I have thought it better to keep distinct from the foregoing, as I am not quite satisfied as to its exact meaning and place.

In many cases—including nearly all of those which I have watched closely from the first—the initial fever and accompanying severe symptoms diminished, or even apparently passed off, in from 12 to 48 hours, and on the second or third day of the disease the patients felt comparatively well, and many returned to their usual duties. Some had no further return of the symptoms. In most of these cases, however, on the third or fourth day from the commencement, there was a somewhat abrupt return of the same symptoms as at first, usually in greater severity.

This initial fever, and period of remission or intermission of the symptoms, was so slight in a large number of cases that it might have been overlooked altogether, had not careful inquiry been made into the patient's symptoms antecedent to the main attack. In many cases I could elicit no evidence of this first short fever at all.

In my own case, and the only other that has occurred in my house, this first fever and remission were well marked. I suffered from severe headache, shivering, pains in the limbs, and a slightly elevated temperature on the evening of 23rd December; but was sufficiently well to attend to my work on the afternoon of the 24th December, and perfectly well on Christmas day. On the afternoon of the following day, at 3.15 P.M., I was suddenly seized with severe frontal headache and all the rest of the typical symptoms. My illness lasted over a fortnight.

Is this initial fever, intermission, and recurrence of the symptoms on the third or fourth day—which has happened in a large number of cases, and which has certainly been noticed by others—to be regarded as an accidental relapse, or as a feature in the typical clinical picture of the disease?

So often did such a relapse take place on the fourth day, that I am disposed to think that the initial fever, the intermission, and relapse formed part of the course of the disease in the most typical cases.

The duration of the disease has varied greatly.

The shortest attack I have met with was a second one in a gentleman who had previously had the disease, and a relapse from which he had recovered quickly. A fortnight after his recovery, one evening, about 9 P.M., he was seized, almost suddenly, with severe headache, shivering, pain in the back and limbs, and a feeling of giddiness and general malaise. The temperature an hour later was 102.4°. He spent a very restless night, was alternately hot and dry, or bathed in a cold, clammy sweat. After very profuse perspiration he fell asleep at 6 A.M., and woke up two hours later, feeling tired, but otherwise quite well. He was able to perform his usual duties on that day and afterwards without any bad effects.

The most protracted cases were of very indefinite duration, the peculiar weakness, faintness, pains, and other symptoms lasting for two or three weeks, and then tapering off into convalescence so gradually as to make it quite impossible to say when the disease ended and recovery commenced.

It was therefore difficult in most cases to say when convalescence really commenced in this disease, because it was impossible in many to tell when the disease had terminated. Certainly the fall of the temperature to the normal could not be taken as a guide, for in some cases the temperature never rose above the normal.

Taking the termination of the more distinctive symptoms as a clue to the beginning of convalescence, it has varied greatly. *In some cases it has been complete in one or two days.* Of this my own case was an instance. On the 14th day of my illness I made an attempt to dress and go out for a drive. This resulted in an attack of syncope, followed by vomiting, which compelled me to return to bed. Next day I started on my round of visits, and worked out of doors for eight hours. Ever since I have felt perfectly well with this exception, that for ten days I suffered from daily attacks of facial neuralgia.

The more strictly patients were confined to bed the more speedy and perfect was the recovery.

Quite the reverse was true of many cases in which the attack was slight, and very little care was taken.

In these, although there was no true relapse, convalescence was often protracted, and recovery very imperfect—indeed, some who had their attack about Christmas time are at the present moment even weaker and less able for their duties than during the attack.

The condition of many of these is very striking. They have lost flesh, suffer from cerebral pains, giddiness, and weakness. They look feeble and dazed; fainting attacks are not uncommon. They suffer from pains in various parts of the body; in some cases, for example, over a somewhat undefined area corresponding with the lower half of the precordia, and the hypochondriac and epigastric regions; in others in the lower extremities. Food brings

on pain and even sickness; a mild purgative—such as cascara sagrada or rhubarb—produces violent vomiting and diarrhoea; a little alcohol causes intoxication, and so forth. It is impossible to say how long it may be in some of these cases before health will be completely restored.

The following *exceptional facts* may be noted here:—

1. In three cases the first symptom of the attack was a *sudden faint*—on recovery from which the ordinary initial phenomena of the disease rapidly developed.

2. In one case profuse *hæmorrhage from the stomach* was among the earliest of the symptoms. The patient was a young lady from Geneva, aged 25, residing in Edinburgh for the winter. She was of large build and well developed, previously somewhat chlorotic, but otherwise in good health. On 29th November (1889) she complained of pain in the head, back, and limbs, and severe pain in the abdomen. Almost simultaneously with the commencement of these symptoms she vomited a very large quantity of blood, and her temperature ran up to 104·6°. On inquiry I found that it was about the period when menstruation might be expected, and this did become established two days later, and was unusually severe. She had never previously vomited blood. Her attack of the disease—so-called influenza—was unusually severe, and her life was in great danger for a week from the combined effects of this and the great loss of blood.

3. The *tendency of the disease to attack women about the menstrual period* was in many other cases a very noticeable fact.

4. In two cases *paralysis of the bladder* occurred, lasting in one 48, in the other 36 hours.

5. There was *slight wrist drop* in one case.

6. In a boy of 14—at present suffering from the disease—*herpes zoster* has developed. It is situated in the upper segment of the thorax on the right side, and involves the arm and axilla.

[7. In one case, which I have seen since my paper was read, there was *aphasia and word blindness*.]

The great majority of my cases have presented no marked deviations from the foregoing picture.

In a considerable number of cases, as I have said, there has been that quasi-relapse after a short initial fever and intermission, which I am disposed to regard as a feature of the most typical form of the disease and not as a relapse.

No true relapse has occurred in any case where the patient was guarded against exposure to cold, and indiscretions in diet, until the distinctive symptoms had quite ceased.

Severe relapses followed—in one or two instances—very slight carelessness, even where the disease was originally very mild.

The following case is interesting as an illustration of this, and

instructive in other respects:—A young gentleman, aged 20, was attended for me during my illness by Dr Alexander Bruce for what was originally a very slight attack. Twelve days after the commencement of this attack, when convalescence appeared to have set in, contrary to my orders he went along the lobby into another room to see his sister, who was also ill. An hour or two later he was seized with shivering, very soon his temperature rose to 105.2° , and severe vomiting and diarrhoea came on. The diarrhoea was easily controlled, but painful retching like that of sea sickness with complete anorexia continued for two or three days. He further suffered from bleeding at the nose, and as the sickness passed off he began to expectorate a small quantity of mucopurulent sputum mixed with blood. On careful examination a small area was discovered, just below the angle of the scapula on the left side, in which the physical signs were, diminished vocal fremitus, slight dulness on percussion, feeble breath sounds—not bronchial, and numerous tolerably fine crepitations at the end of inspiration and beginning of expiration. In three days after they were detected, these signs—which pointed to local congestion and catarrh—had completely disappeared. Just when the severe vomiting had been checked, his bladder became paralysed, and he suffered from complete retention of urine for 48 hours.

Mr A. G. Miller, who drew off his urine on one occasion, noticed and remarked to me that the bladder gave little or no assistance; that it seemed not to contract at all. At this time he was able to stand up at the side of the bed, and repeatedly made unsuccessful efforts to micturate. Under the use of sweet spirits of nitre with small doses of liquor strychniæ he gradually recovered the lost power.

I may mention here that a similar paralysis of the bladder occurred in another case. The patient was a gentleman 35 years of age, and his case presented this peculiarity, that for ten days the temperature tended to rise occasionally at irregular intervals to from 100° to 101° . On the eighth and ninth days of the disease he had retention of urine for about 26 hours.

A peculiar form of congestion of the lungs often ending in bronchitis and catarrhal pneumonia, and which followed a peculiar course, was frequent among the earliest cases which I met with, and chiefly in children. I will refer to this again.

I have met with three cases in which there was *a distinct second attack* after an interval of comparatively good health, and one case in which there were *probably three attacks*, the third being very slight and transient, but characterized by the headache and pain in the back and limbs.

The disease has appeared to me *to attack both sexes with equal frequency and severity.*

It has occurred at all ages,—my youngest patient was 3 years of age and the oldest 75.

In the first period of the epidemic, children appeared to have been attacked in greater numbers than adults. From 14th December to 27th January, in my experience, the larger number of the patients were adults.

The rich and well-to-do would appear to have suffered more than the poor and ill-conditioned. I can draw this conclusion only from my own experience of its prevalence in private practice, and almost entire absence in the wards of the Infirmary; but the physicians in charge of the large poor-houses will be able to assist in the determination of this interesting point.

None of my cases have proved fatal.

This so-called influenza appears to me to be a disease—whatever the exact nature of its cause may be—which is characterized by profound disturbance of the nervous system. Upon this view all of the symptoms and complications can be explained. All observers are agreed that in this disease the symptoms referable to the nervous system bulk most largely. A careful study of all my cases has satisfied me that in those, even the most severe, in which from the outset the exciting causes of complications were excluded, the essential symptoms were entirely confined to those which could be referred to the nervous system.

There can thus be no question as to the nature of the following symptoms:—

a. Headache, pains in limbs and body, hyperæsthesia, paralysis of the bladder, and paresis of the forearm.

b. Giddiness and tendency to faint, and early weakness.

c. Weakness, irregularity, and tendency to intermission of the heart's action.

d. Nausea, retching, and vomiting as an initial symptom.

e. Careful study of the sore throat showed it to be really due rather to hyperæsthesia than to inflammation, for in nearly all the cases in which it was present examination showed that there was either nothing visible to account for it, or merely slight redness. It was clearly due to mucous membrane or neuro-muscular hyperæsthesia and hyperalgesia. Undoubtedly hyperæsthesia tends to become associated with congestion.

f. A similar explanation accounts most satisfactorily for the stomach and bowel disturbances. The vomiting was nervous vomiting, in some cases occurring simultaneously with severe cerebral disturbances, in other cases resembling the violent, futile efforts of sea-sickness, with even more pain. In the great majority of cases the tongue remained quite clean, or was very slightly furred. The diarrhœa was similar; it was severe, associated with very painful colic, and unaccompanied with any signs in the stools of inflammation of the bowel. It is well known that paralysis and spasm are closely allied effects of functional disturbances of the nervous system. The condition of the stomach and bowels illus-

trated this. When bland food alone was given, there was only loss of appetite and constipation; but the slightest deviation in the direction of indigestible food, or slightly irritant purgatives, brought on severe pain, with retching, vomiting, and diarrhoea.

g. The cough present in this disease was essentially purely nervous. It was paroxysmal, closely resembling that of pertussis; no uncomfortable sensations were felt in the intervals; but the slightest cold draught tended to bring it on. This pointed to exaggerated reflex irritability and abnormal sensitiveness of the laryngeal mucous membrane. In one case slight laryngitis occurred.

h. The eruptions were all of the class of neuroses; for example, urticaria, herpes zoster, nasal and labial herpes, and erythema, all indicate such a common starting-point as the nervous system.

i. Vaso-motor and secretory disturbances, such as flushings, sweatings, and hæmorrhages from the nose and stomach, were frequently met with.

It seems to me that the peculiar forms of congestion and inflammation of the lungs met with as an accidental complication in this disease are best accounted for on the view that they are the result of a state of functional irritability of the vaso-motor nerve centres. In many cases the behaviour of the pneumonia was very peculiar, and may be shortly described in this way:—It was characterized by localized congestion, which in some cases ended in catarrhal pneumonic inflammation. This pneumonia presented in some cases a peculiar tendency to shift from one position to another in the lung, or from one lung to the other, in a most remarkable manner.

I have met with several such cases, and the most characteristic occurred in young children. To illustrate this, I will give you a summary of a most interesting case, the patient being a little girl, who was under Dr A. L. Macleish's and my care early in November, and who was most carefully watched and observed by my friend Dr Macleish, from whose notes I quote, and for the accuracy of which I can fully vouch.

Summary of Dr Macleish's Notes of the Case.

November 11.—Commenced with headache and a rise of temperature to 101·6°, followed by symptoms like those of mild bronchitis on the 12th.

November 13.—Inflammation of lung tissue in upper lobe of left lung, with bronchitic signs in the rest of the lung.

November 14.—The inflammation in left apex slightly diminished; congestion of right lung behind in a limited area below the angle of the scapula. This cleared up in the course of the day; in the evening no marked dulness could be detected anywhere, but crepitations found in various parts of the upper lobe of the left lung.

November 15.—Marked signs of congestion of left lower lobe, with fine crepitations at the angle of the left scapula, and increased

vocal fremitus and resonance. Later in the day, having been lying all day on the right side, there was found well-marked pneumonic crepitation all over the right lung, the left having greatly cleared up, save at the angle of the left scapula, under the left clavicle, and outside the left nipple. Still later, the crepitations were more equal on the two sides.

November 16.—The lower lobe of the right lung has cleared up, and the upper lobe become consolidated. Later in the day, only signs of bronchitis in the lower part of right lung.

November 17 and 18.—There are now four areas—viz., in left apex, patch outside left nipple, patch at angle of left scapula and in right upper lobe. Bronchitis more intense in right lung.

November 19.—An area of congested lung appears again below the angle of the right scapula in the position noted on the 14th.

November 20.—The last-noted area has quite cleared up.

November 21 and following days.—All the areas gradually clear up.

Such a condition of the lungs is exactly what might be expected from an erratic and fluctuating intense vaso-motor disturbance of the organ.

In other cases the vaso-motor disturbance has been more persistent, and has chiefly led to the signs of intense congestion of the lower lobes, with catarrhal expectoration, and little tendency to consolidation in most cases, although ending in consolidation in some. That vaso-motor congestion should in some instances pass over the boundary line, and terminate in local inflammation, is what one would expect.

On this theory all the deviations from the purely nervous type and the complications can, I think, be best explained.

The clinical features of this disease are identical with those of the epidemic which has been prevalent in Russia, Germany, etc.

It is unnecessary to argue this statement, as I believe every intelligent physician admits it, and I shall at any rate not consider it necessary to enter into any proof of it to-night.

It is a remarkable fact that the disease would appear to have commenced at St Petersburg during almost the same weeks as those in which the first cases were noted in Edinburgh. From various accounts which have recently been published, I find that, in St Petersburg, after a few sporadic cases in October, the disease developed rapidly during the first week of November 1889. This corresponds exactly with the period during which my first cases were noted here. Admitting that it may have broken out in other parts of Russia before this, it is a remarkable fact—illustrating the great rapidity with which the disease producing influence became widely diffused—that the occurrence of the disease should have taken place in such distant countries, with intervening sea, almost simultaneously. It stands out in striking contrast to the

fact, that quite adjacent towns or villages have been successively attacked after considerable intervals of time.

From these two strongly contrasted facts, the development of the disease would appear to depend on two distinct factors:—

1. *A wide-spread influence—probably atmospheric.*

2. *Certain local conditions.*

From the rapidity with which the disease influence manifested itself almost simultaneously in widely distant countries, we may infer that it is at least partly *due to some subtle atmospheric condition which becomes with great rapidity widely diffused.* This is not the mode of spreading of any other known disease depending on a micro-organism; if it is supposed to be conveyed by letters, or such like, it should be shown to be clearly contagious.

From the fact that intervals of many weeks have elapsed between the times at which quite adjacent towns have become affected, *we must conclude that this wide-spread influence is not the sole condition on which the outbreak of the disease depends. Certain local conditions must exert an accelerating or a retarding influence on the activity of the virus.*

The following facts lead one, however, to conclude that the disease is a fever, and due to a cause similar to that of the other specific fevers:—

a. The sudden onset, etc.

b. The fever.

c. The typical course.

It is, therefore, probably due to a micro-organism.

The inference, then, which seems to me to meet the difficulties to which I have alluded is the following:—

The micro-organism which is the cause of the disease exists in all parts of the earth. It is, however, only under certain conditions that it becomes sufficiently active to cause severe symptoms in man and animals.

It becomes *epidemic, or pandemic*, when the influence which causes it to become thus active is *wide-spread or universal.* This wide-spread subtle condition—whatever it may be—although it *pre-eminently brings into activity the micro-organism which is presumably the immediate cause of the prevailing disease—would appear to have an influence in stimulating into virulent activity various other disease germs, such as those of measles, whooping-cough, pneumonia, scarlatina, and catarrh, which are not only unusually prevalent at present, but are unusually severe and fatal. In this way the large mortality from other diseases may be accounted for.*

Very vague explanations or suggestions of what the changes in the state of atmosphere and the local conditions are have as yet been forthcoming. The mildness of the season has been universally noted as a coincident fact.

Regarding *the local causes*, the only fact that I have been able to note as an apparent causal factor may be stated as follows:—

The great majority of my cases occurred singly, *i.e.*, one in a family at a time; or, where more than one was attacked, the intervals between their attacks were considerable. In a few instances, however, it happened that almost all the inmates of the house took the disease in rapid succession. In the four worst cases of this kind from 7 to 9 inmates were ill at one time.

In two of these the corridors and rooms in the houses were warmed with hot air pipes on the American system. In the remaining two the rooms and lobbies were kept excessively warm with stoves and large fires. It is possible that this excessive heat might—like the prevailing mild state of the atmosphere—either favour the development of the disease germs in certain houses, or, by weakening the inhabitants, predispose them to take the disease.

There are many facts which tend to support the view that *the rich and well-to-do have suffered more than the poor and ill conditioned.* I do not know whether or not the opposite condition from the above, *the want of coal and consequent coldness of their homes*, can in any degree be regarded as offering a possible explanation of the immunity in such cases.

It would be interesting to know whether there is any difference in regard to the temperature maintained in them, between Institutions such as Morningside Asylum, where a large number of cases have occurred, and such, on the other hand, as St Cuthbert's Poorhouse, where—as Dr Aitchison informs me—few, if any, typical cases have been met with.

What is this disease? It differs essentially, in many important respects, from ordinary sporadic influenza, and in some respects from the type which has characterized previous epidemics of influenza. Is it really influenza?

Dr Frank Clemow—one of my former pupils writing from St Petersburg—in a letter to the *British Medical Journal*, dated November 27th, 1889, says regarding the outbreak of the epidemic there:—"It is frequently spoken of in the lay papers as influenza, but the typical symptoms of this disease are far more frequently absent than present; and the only features in common are the rapid course, the extremely rapid spread, and the frontal headache—the great running at the nose and eyes being absent in all the cases that I have seen."

In very few of the cases I have attended have there been any of the catarrhal symptoms which are so characteristic of influenza. When these have occurred they were evidently accidental, and easily accounted for by the vaso-motor irritability which has been undoubtedly a characteristic feature of the prevailing epidemic.

It is remarkable that several military surgeons, who have had experience of both influenza and dengue, lean to the view that the disease is a form of dengue modified by conditions of place and climate. One of my patients, a General Officer who had long served

in tropical climates, who commanded a division of the army in Burmah during the late war, and who had himself suffered from dengue, had no hesitation in asserting that his recent attack of so-called influenza was not influenza at all, but dengue. He founded this opinion on the entire absence of catarrhal symptoms, the presence of an eruption, and the persistence of pains in the neighbourhood of the knees and other joints.

The course of the disease in those cases which began with a short initial fever, a distinct remission, and a recurrence of the symptoms on the third or fourth day, certainly resembled that of dengue rather than of influenza, and the forms of eruption present in a considerable number of the cases in the present epidemic are identical with those which have been described as of frequent occurrence in dengue. But it is not easy to say positively that the disease is either dengue or influenza. Is it not possible that dengue and influenza are modifications of the same disease, and that this is an intermediate type?

In an interesting account in the *British Medical Journal*, of February 15th, of an obscure outbreak of dengue occurring on board H.M.S. "Agamemnon," while stationed at Zanzibar, between November 1888 and September 1889, by Charles C. Godding, staff-surgeon R.N., a modification of the dengue fever is described which, while undoubtedly dengue, in many respects resembled the present epidemic of influenza. It was believed to have been introduced into the ship by an officer who had been staying for a few days at Aden, where the disease is very common, and who was the first to suffer from it. 175 cases occurred on board. The ship returned to Malta, when the present epidemic was rife, at the end of last year. The interesting point is this, *the crew of this ship—which had during the past year suffered severely from dengue—had at Malta, when the paper was written, suffered much less from the so-called influenza than any of the other ships.* What is the explanation of this comparative immunity?

Many other army and naval surgeons have noticed the great resemblance between the present epidemic and dengue. Surgeon E. J. Erskine of the Army Medical Staff, Gravesend, states in the same journal his conviction that "the present epidemic is only dengue modified by climate."

My own opinion is that much of the evidence is in favour of the disease being influenza, but that there are a sufficient number of the characteristic symptoms of dengue present in many of the cases to make it difficult to give a negative answer to the question, Are influenza and dengue not possibly modifications of the same disease? The following facts are all characteristic of dengue rather than of influenza:—

1. The absence of running at the nose and eyes.
2. The short initial fever, remission and relapse, and tendency to later relapses.

3. The severe, persistent pains in and near the joints—in some cases associated with swelling.

4. The various forms of eruption.

Dengue has been limited to tropical climates hitherto. If it is simply a tropical modification of influenza, may not the tendency of the present epidemic to assume something of the dengue type be due to the mildness of the season?

Is this disease contagious, or simply miasmatic?

It is impossible, I think, to give a very definite answer to this question, but to my mind the evidence is in favour of its being either not contagious at all or very feebly so.

The following facts are against its being essentially contagious, in so far as my experience has gone:—

1st, The number of cases in which those occupying the same room and even bed with a patient have escaped.

2nd, The fact that in no case in my experience has a nurse while attending cases of influenza contracted the disease.

3rd, The large number of the cases which have occurred either as isolated examples, or successively at such intervals of time as to make contagion uncertain.

Of course, in the case of a disease which tends to affect so large a proportion of the community, it is certain that several members of a family will sometimes be attacked apart altogether from contagion.

Regarding the treatment of the disease, I have come to the conclusion that no drugs cut short the disease, and that the most that can be done is to guide the patient through it in such a manner as to steer clear of complications. I would recommend that the following rules should be followed:—

1st, In all cases, recollecting the great tendency to a recurrence of the disease on the third or fourth days, keep the patient in bed, or carefully guarded against cold until that period is over.

2nd, In all cases maintain the same precautions until all the symptoms of the disease have disappeared.

3rd, Give only the lightest and most digestible food during and for some time after the disease.

4th, For the constipation, avoid all irritant medicines, and keep the bowels open with saline purgatives, such as Carlsbad salts—the powder form—Hunyadi Janos, etc.

5th, For the pains and feverish attacks, administer antipyrin in doses of from 5 grs. to 10 grs. as required.

6th, For the pareses and paralysis, administer strychnia in very small doses.

7th, Avoid alcohol in the form of whisky or brandy as you would avoid poison until the symptoms of the disease have quite ceased, when a light claret or champagne is useful.

8th, During convalescence, administer tonics according to the special requirements in each case.

III.—ON SOME POINTS IN THE TECHNIQUE OF LAPAROTOMY.

By J. HALLIDAY CROOM, M.D., F.R.C.P. Ed., F.R.S.E., Physician to the Royal Maternity Hospital; Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary; Lecturer on Midwifery and Diseases of Women, School of Medicine, Edinburgh.

(Read before the Medico-Chirurgical Society of Edinburgh, 4th December 1889.)

THERE are various reasons which weigh with me in venturing to bring the subject of "The Technique of Laparotomy" before the Medico-Chirurgical Society. All my communications on this and cognate subjects have been hitherto read and discussed in the sister Society of Obstetrics. If any justification for my procedure were necessary, I could point to the pleasing fact that your presidential chair is this year occupied by the Professor of Obstetrics; and I cannot let this opportunity pass without acknowledging, however inadequately, his kindness to me during my whole professional life, which has imposed upon me a debt of gratitude which I neither hope nor wish to reduce. My main reason, however, is that laparotomy, so far at least as the female pelvis is concerned, has fallen into the hands of gynecologists; and I confess that I can find no fault with this arrangement. Nor do I think that any argument can be urged against the propriety of it; for, after all, the decision as to the propriety of an operation must lie with those most commonly brought in contact with the organs involved.

Although I do not profess to be able to add anything new to the mass of literature on this subject that at present exists, yet it appears to me that an interchange of opinion, between surgeons well accustomed to laparotomy and those of us who view it from the more purely gynecological standpoint, may be of mutual benefit. My experience is derived from 200 cases, which have afforded me an opportunity of seeing and dealing with most of the accidents and varieties of the operation. With regard to the question of statistics, this I have dealt with separately in other communications, but the following table briefly states the facts:—

		Deaths.	Mortality per cent.
Ovariectomy and appendage cases,	166	7	4·2
Exploratory incisions, with deaths at long intervals from primary disease, ...	20	9	45
Incomplete operations, ...	4	1	25
Hysterectomy, ...	4	4	100
Umbilical hernia, ...	1	...	...
Tubercular peritonitis, ...	3	...	...
Purulent peritonitis, ...	2	...	...

Without summarily dismissing the question of diagnosis, I must say that increasing experience has not, to me, lessened its difficulties

and uncertainties. Although the diagnosis of ordinary ovarian and fibroid tumours is as a rule simple and easy enough, yet there remains quite a large class of cases where accuracy of diagnosis is, so far as I know, unattainable before the abdomen is opened.

Encysted Tubercular Peritonitis.—Take, for instance, the cases of encysted tubercular peritonitis, of which I have met with three. Between these conditions and a simple ovarian tumour, I know of no means whatever of diagnosing. The physical signs, even to the clear percussion note in the flanks, are the same. There is, as a rule, no history of peritonitis, and in those cases, at least, which I have seen there had been no indications of tubercular disease before operation, though in two tuberculosis in the lungs or elsewhere developed afterwards. In respect of this question of tubercular peritonitis, I may say in passing that there can be no doubt that, where the other organs in the body are unaffected, washing out and draining often effects a cure. In other cases the mere interference with the peritoneum seems to be the only stimulus wanted for the rapid development of tubercular disease elsewhere. I may here be permitted to point out, so far as I know, the precise position in which laparotomy, with regard to tubercular peritonitis, at present stands. The investigations of Spaeth corroborated by others, as well as my own, over a field including in all seventy cases, show the following conclusions:—

1. In primary tuberculosis of the peritoneum, where none of the viscera are involved, laparotomy is often, though not always, a curative measure.

2. When the pelvic organs are affected, operative interference is not usually successful.

3. If the disease originate in the intestine, operative interference is simply palliative.

4. When the genital tract is the primary seat of infection, operation should be performed as soon as possible.

5. Wherever pus, be it from tubercular disease or otherwise, has accumulated in the peritoneum, abdominal section gives brilliant results. There are no cases of abdominal section that are more satisfactory than those of pelvi-abdominal abscess.

Sarcoma of Mesentery.—Take another illustration, viz., a case where there was a firm, semisolid mass about the size of a cocoa-nut in the pouch of Douglas, with the uterus displaced forwards, the discomfort complained of being backache and irregular menstruation. The physical examination seemed to leave little doubt that this was an ovarian tumour. Laparotomy, however, revealed a large sarcomatous group of mesenteric glands connected with the caput cæcum coli, lying deep down and distending the pouch of Douglas: operative interference in such a case was, of course, impossible.

Solid Ovarian Tumour.—Again, let me refer to quite a recent case—a woman sent into the Hospital with a large solid tumour

the size of a six months' pregnancy. There was a history of menorrhagia and metrorrhagia, which had continued with increasing severity. The sound showed the uterus very considerably enlarged, and its introduction caused copious hæmorrhage. I diagnosed, therefore, a fibroid tumour, and advised removal of the ovaries. On opening the abdomen I found instead of a fibroid a solid ovarian tumour firmly wedged down in the pelvis. This I removed satisfactorily. The physician who sent the case to me made the remark in his letter, "Is not this just the case for electricity?" I can only repeat the question, and the issue gives the answer.

Large Sarcoma of Liver.—Perhaps the last is the most striking of all. This patient was sent to me with a large abdominal swelling, which could be plainly felt rising from the pelvic brim and reaching apparently to the costal margin above. A per vaginam examination showed the uterus free, and a smooth even mass lying within the pouch of Douglas. A careful physical examination by others as well as by myself did not warrant the assumption that the tumour had done otherwise than rise from the pelvis. You will probably therefore sympathize both in my surprise and in my disappointment when, on opening the abdomen, I found not the removable tumour I had expected, but a huge sarcomatous liver filling up the entire abdomen, and passing right through the pelvic brim into the pouch of Douglas.

With regard to exactitude in the diagnosis of appendage conditions, the difficulty is still greater; and with all the care one can bestow on a previous examination, it is still a fact that many of these conditions are not accurately diagnosed until the abdomen is actually opened.

In respect of the relation of menstruation and the period of operating, I do not think there is very much to be said, beyond this—

1. There is no possible objection to operating when the patient is menstruating, because then the organs dealt with are being depleted; nor

2. Is there any objection to selecting any intervening period; but

3. So far as my experience goes, it is unwise to operate when menstruation is imminent; for in two such cases where ovariotomy was performed for parovarian tumours of the right side, within forty-eight hours following the operation there was distinct hæmatoma of the corresponding ovary, which very materially delayed the convalescence, and, in one of the cases at least, rendered abdominal section for the second time necessary in the same patient.

If it be necessary to operate while the patient is menstruating, I take care that an antiseptic vaginal douche be freely administered immediately before the operation, and that the diapers are made of antiseptic absorbent wool.

First, then, with regard to the immediate preparations for the

operation. There are but three requisites—an empty bladder, an empty intestinal tube, and a clean skin. I still insist upon the necessity of freeing the pubes of hair. This in many cases, no doubt, is a work of supererogation, but, considering the little care common women take of these parts, I think it best to remove any possibility of doubt. To ensure absolute cleanliness of the skin, three washings, I think, are essential. The first with ordinary soap and water; the second with turpentine; the third with solution of corrosive sublimate, very special care being taken with regard to the umbilicus.

On the threshold of the subject we are met by the question of antiseptics. It may seem strange that here in Edinburgh any such question should arise, and I do not presume for one moment to discuss the general question of antiseptics, but to show how the matter stands so far as I am concerned in the performance of laparotomy.

My earlier operations were all performed with what is known as strict antiseptic precautions, *i.e.*, the spray, etc. I have never yet seen my way to abandon altogether antiseptics of some kind or other, but I now employ them in a very modified form, my main care being with regard to clean hands and sponges. I still use a weak solution of perchloride of mercury ($\frac{1}{1000}$) to irrigate the abdominal cavity, and to apply, as a precautionary measure, on the towels surrounding the patient; and I confess that I can see no reason why I should abandon these measures, which are perfectly harmless, and probably afford an additional element of safety to the operation. So far as I am able to judge, Tait, Bantock, and others have discarded the use of all antiseptic solutions of any kind whatever, just because they found them neither a safeguard nor harmless. They affirm that both their temperature and their death-rate have been diminished since they have given up the use of these drugs. Be their experience what it may, up till this moment I have not been able to point to a single case save one, where I could connect in the most remote manner the cause of the death or the rise in temperature with the use of any antiseptic. In the case to which I refer, the patient exhibited some of the symptoms of mercurial poisoning, this being due to the accidental use of too strong a solution of bichloride of mercury.

Further, my death-rate for ovariectomy and appendage work stands at present at 4.2 per cent.—in other words, out of 166 operations on cases of this class, there have been 7 deaths, in which the cause of death has been:—Fatty heart in 2; ulcer of the stomach in 1; exhaustion in an old woman of 70, 1; shock, 2; exhaustion from suppuration, 1,—total 7.

A further reason that must always weigh with those of us who practise both obstetrics and gynaecology is this, that however much we may minimise the value of antiseptics in general surgery, not their most bitter opponent but must admit their paramount import-

ance in obstetrics. I do not fear contradiction when I say, that their introduction into this department has been the most important practical improvement in obstetrics since the introduction of the forceps.

Hence, therefore, a little latitude must be conceded to those of us who practise both departments, if we still continue to use modified Listerism in abdominal work, notwithstanding the brilliant results of Tait and Bantock without any antiseptics at all.

Judging from my own experience, I do not think either the adoption of strict antiseptics or their abandonment to the limited extent to which I employ them now has made the slightest alteration in my results. I am quite sure of this, that absolute cleanliness in regard to sponges and hands, and the patient's skin and surroundings, are all that are essential to a safe laparotomy as far as sepsis is concerned. But as absolute cleanliness on the part of the patient, assistants, and nurses is not always to be relied on, the employment of modified antiseptics supplies the necessary safeguard.

As to the selection of the anæsthetic, during the earlier operations I invariably used chloroform; but owing to the long persistent sickness, sometimes lasting from thirty-six to forty-eight hours, and even longer, following its use, I was obliged to abandon it. My decision was precipitated owing to one patient to whom chloroform was administered for two hours, and who died after five days' persistent vomiting, with no apparent cause for death except the exhaustion produced by the sickness. Ether, administered through the Clover apparatus, entirely obviates this. It has, of course, slight corresponding disadvantages—first, the necessity for an apparatus; second, the length of time taken to produce anæsthesia; and, third, the unpleasant sensations produced by the first few whiffs. All these difficulties, however, can be overcome by starting the administration of the anæsthetic with chloroform. A more serious objection to its use is the irritation which it causes in the respiratory tract afterwards, and the utter impossibility of giving it where there is any broncho-pneumonic condition. Careful attention to the temperature of the respired air will reduce this danger to a minimum. In these latter cases, of course, chloroform is to be used.

Owing to the length of time which many of these operations take, and the uncertainty with regard to all of them, it is always best to give a full stimulant before beginning.

After the induction of anæsthesia and the arrangement of the patient on the operating-table, the abdomen, except at the point of incision, is to be covered with macintosh and towels wrung out of hot corrosive solution. In respect of the point of incision, it is apparently a disputed question as to whether it is better in all cases to select the linea alba or make the incision to one or other side as the position of the tumour may indicate. It

seems to me that the linea alba is the most convenient spot for all abdominal and pelvic operations. It is the central spot from which it is most convenient to work, and the relation of all neighbouring tissues is best estimated from that point.

Although my own experience does not warrant me in saying so, yet I can, *a priori*, understand that the size of the wound may have something to do both with sepsis and subsequent hernia. Personally, I have not found that the size of the wound makes the slightest difference. Perhaps it may be quite the other way, and that a small wound causing the pressure to be confined to a limited space tends more to the production of ventral hernia than a larger wound. Certainly the only two herniæ that have occurred to me in these 200 cases have both been in women, in whom the incision was only big enough to admit of my first and second fingers. It seems to me that the size of the incision is to be regulated solely by a consideration of the accuracy with which the parts may be manipulated, and with due regard to the control of hæmorrhage and the management of complications. In other words, so far as I am able to judge, I think a big wound, with careful inspection and comparatively little oozing, is better than a small wound and uncertainty with regard to bleeding points, etc. The bearing of this question on the subsequent healing of the wound will be noticed further on.

In making the incision it seems desirable to avoid cutting through the muscle as far as possible, and rather to endeavour to separate the two recti by means of the finger nail and knife handle. This remark applies to those cases where there is no abdominal distension; for where the abdomen is distended by a large ovarian tumour, the muscular fibres are so separated as to render either their division or separation uncalled for.

Next after reaching the tumour surface, comes the question of adhesions. Of course, large adherent ovarian tumours are now much less common than they used to be, their early recognition and prompt treatment being now well known through the whole profession. Only where vessels in the omentum and mesentery are large is there any necessity for ligature. All other adhesions, whether to the parietes, intestines, or other organs, seem far best treated simply with the finger or the finger nail or a sponge. It is a waste of time and patience, and but a very slight diminution in the amount of blood lost, to deal with adhesions separately. I have repeatedly operated when the patient's temperature was 103° and acute peritonitis was going on. In such cases the adhesions are extensive and recent; and the best method, it seems to me, is to separate them rapidly with the hand and control the after-hæmorrhage, which is always profuse, entirely by hot water. Any other mode of procedure involves the loss of valuable time both to the operator and to the patient.

The most troublesome adhesions are those with the intestines, when sponge and finger nail are the only satisfactory means of separation. If, after separation, the intestine is very vascular,

before dropping the torn portion out of sight, a little perchloride of iron or tincture of iodine applied to the spot controls the oozing, and never, so far as I have seen, has any bad effect. Even in those tumours which are entirely surrounded by intestine adherent to them, a little time and care will overcome even the most complete adhesions and leave the bowel uninjured. I have never found that any good is to be gained by waiting till a peritonitis has subsided. On the contrary, I think the peritoneum is just as safely dealt with when a temperature of say 103° indicates acute inflammation as under any other circumstances.

The oozing from parietal and visceral adhesions has never but once given me secondary trouble. All such hæmorrhage has been, with this exception, completely and permanently stopped in one of three ways—first, by filling the abdomen with antiseptic hot water, and leaving it so for some minutes; or, second, by packing the abdomen with hot sponges for some minutes; or, third, by painting any rough surfaces with a styptic such as turpentine. But, after all, a little blood left in the abdominal cavity more or less does little harm, and is quickly absorbed.

In only one case—that which I have just referred to—the abdomen became distended twenty-four hours after operation, and as the patient showed symptoms of internal hæmorrhage, and as during the operation there had been numerous and very vascular adhesions, I reopened the abdomen and washed her out with very hot water, to which I added a slightly saline solution, and then closed the wound. The patient made an excellent recovery. I have never met with one single death from uncontrolled hæmorrhage from adhesions, nor, for that part, from any form of hæmorrhage whatever.

Some of the most troublesome adhesions are those associated with tumours in the pouch of Douglas. These, of course, can be dealt with only by touch and by the finger alone. In that position they are often very adherent, and considerable violence is required to dislodge the tumour. But even there the hæmorrhage from such a cause can be perfectly well controlled by firm packing with sponges. Some adhesions in the pouch of Douglas are very firm and strong, and in raising the tumour considerable accidental tears take place, and the subsequent hæmorrhage is often very profuse. Even in such cases the bleeding vessel can with care and time be secured. In such a case, if sponges fail, then a careful inspection should be made by reflected light, and the bleeding point exposed and secured. If both these fail, then the abdominal wound should without delay be enlarged and *eventration* performed, the intestines being carefully secured in a warm towel. In this way space is gained, and the source of the hæmorrhage ascertained and stopped, with but little additional risk to the patient. I have not found that eventration in itself is a dangerous proceeding; but I have found that in some of those cases

where recourse has been had to it the abdominal wound has shown a disinclination to heal. This I attribute, not to the enlargement of the wound nor the removal and exposure of the intestines themselves, but to this fact, viz., that when vessels readily tear in that situation, it seems an indication of a general cachectic and diseased state of the patient; for it is quite extraordinary how much pulling and dragging in that neighbourhood the tissues will withstand in an otherwise healthy woman. In one case of gonorrhœal ovaritis, for example, where the patient was much reduced, where not more than the ordinary force was used to liberate the appendages, the laceration in the broad ligaments was so great and the hæmorrhage so profuse that to secure the bleeding points I was obliged to eventrate. From the eventration itself, and from the removal of the appendages, she quite recovered, and lived for three weeks, but died directly from exhaustion due to an unhealed abdominal wound.

With very few exceptions, the pedicle in all my cases has been treated by either the Staffordshire or Bantock knot,—except, of course, in the cases of hysterectomy. In every ordinary case the pedicle, thus managed, has given good results. Twice only has the ligature slipped. In both of these cases the pedicle was broad and short. In the one the accident was observed before closing the abdomen, and the pedicle seized, clamped, and cauterized. In the other, the condition of the patient an hour after operation and the distension of her abdomen sufficiently indicated hæmorrhage. I therefore reopened the abdomen, put a fresh Staffordshire knot over the pedicle, and three extra stitches. Both patients did well.

There is a distinct class of cases, however, in which this treatment of the pedicle is inapplicable; and three alternatives, of all of which I have had experience, present themselves:—

1. In cases where, in removing the appendages for bleeding fibroids, it is found that the broad ligaments have been so split up as to render the ovary and tube almost sessile on the uterus. Then, by rotating the uterus so that the broad ligament comes into the wound, the clamp and cautery can be used with great advantage. These cases are rare; but when they do occur, as dire experience has taught me, it is unwise to trust to the Staffordshire knot. In the case I refer to, after having rotated the uterus round so that the ovary and tube with the broad ligament lay in the axis of the wound, I applied the Staffordshire knot. Immediately thereafter the uterus whisked round, and in a few minutes copious bleeding took place. I again rotated the uterus, exposed the pedicle, found the knot had slipped, and, as there was no room for any further application of the ligature, I clamped and cauterized with the best results.

2. It is distinctly indicative of the progress of abdominal surgery that it should be necessary in a communication like the present to note, as of a curiosity, that in some exceptional cases I have

been obliged to treat the pedicle extraperitoneally. These cases have been six in number, and have been as follows:—

- (1.) One in which I had to remove both ovarian tumour and uterus.
- (2.) Two in which the pedicle was so short that I was obliged to have a portion of the tumour as a stump.
- (3.) Two in which I was unable to control the hæmorrhage, notwithstanding numerous ligatures; and,
- (4.) One incomplete operation.

The first five cases did well; the last died. This brings us to the third alternative, viz. :—

3. The treatment of thick pedicles by means of numerous ligatures. In such cases I have had recourse to various methods.

(1.) By placing a distinct ligature round the pedicle before transfixing, and then transfixing and amputating. Here let it be noted that the tighter the ligature is drawn the safer the patient. The ligature ought to be drawn to the full extent of the operator's power.

(2.) I have transfixed and tied the pedicle in two parts, and then afterwards applied the ordinary Staffordshire knot; and, lastly,

(3.) After applying the Staffordshire knot and removing the tumour I have sewn the peritoneal edges together with many cat-gut stitches.

In tying the pedicle the greatest possible care must be used in the selection of the cord, which should be No. 6 best twisted silk. It ought to be boiled before using; and there is one practical point, viz., that the same boiled cord should not be used twice. If so, it will unquestionably break. This has occurred to me once, where it broke four or five times, and ultimately the pedicle had to be secured by a doubled cord.

Once it has been my misfortune, from want of care in dealing with a large tumour, to have the pedicle tear at its root before the ligature could be applied. This, tearing as it did the broad ligament and its contained vessels, caused delay of at least an hour in an otherwise easy operation before the torn surface could be exposed and sewn.

It is certainly remarkable how easily the pedicle shrinks where the tissue involved is the broad ligament, and how different it is where uterine tissue is being dealt with. The tighter the ligature is drawn the better.

My own experience of the drainage-tube is comparatively slight. I am unable to lavish upon it the unconditional encomiums which many are in the habit of employing. That in some cases I found it act as a sort of sentinel at the wound end I am willing to admit; but in the majority of cases, after careful washing, its use has been to me superfluous. Let me distinctly explain that I am keenly alive to its great value in cases, for example,

Of suppurative peritonitis, and
Of tubercular peritonitis;

yet, so far as my knowledge goes, its use and scope in laparotomy is limited. In the great majority of my cases I have trusted to the absorbent power of the peritoneum to get rid of any blood debris or serous fluid, and I have invariably been justified in this confidence. Except in extreme cases, or in conditions similar to those I have just specified, the drainage-tube adds to rather than diminishes the risk.

I am sure there is no more important proceeding in the performance of laparotomy than careful subsequent irrigation of the abdominal and pelvic cavity. This, though not absolutely essential in the simplest cases, yet seems to me so important that I adopt it almost as a matter of routine. Certainly in every case where there has been much manipulation, any hæmorrhage, any rupture of the tumour, any handling of the intestines, any separation of adhesions, irrigation is an essential. I know that cases have been recorded where the patient has succumbed from shock during this manœuvre. The opponents of antisepticism say the shock was due not to the hot water, but to the antiseptic used. My own experience has been entirely free from any such accident. A weak corrosive solution, 1-5000th, with a temperature of about 115° to 120° Fahrenheit, according to circumstances, is used. The whole cavity should be flushed by means of an indiarubber tube carried deep down into the pelvis, and this should be continued till there is no trace of clot debris or hæmorrhage. The cavity is, of course, to be well sponged out. And though at first I was careful to remove the last drop of fluid, yet now I am disposed to think that the continued sponging in no way benefits the parts, and that a residuum of fluid does no harm.

IV.—THE MECHANISM OF PROSTATIC OBSTRUCTION ILLUSTRATED BY A CASE OF VESICAL TUMOUR.

By ALBERT WILSON, M.D., Leytonstone.

History of the Patient.—Mr T., æt. 70, sent for me on 28th May 1888, because he had passed no urine for twenty-four hours. For some years he had increasing difficulty in micturition, and the urine was often coffee-coloured, as though blood were present. During the past year he had suffered much abdominal pain, due to the distended bladder, though he had considered it as indigestion.

On my arrival I found the patient in great pain, and the bladder could be felt as high as the umbilicus. I emptied the bladder with much difficulty, and free bleeding followed the operation. I first tried with No. 12, and failing, used No. 6, then a gum elastic, and finally succeeded with No. 12. For the following week I had to draw off the urine at least once in the twenty-four hours. This caused much pain and such free hæmorrhage that, the patient's life being in danger from exhaustion, I advised opening the bladder.

The hæmorrhage was peculiar. Thus, no blood might escape with the urine, but after the bladder was empty two or three ounces of bright blood would pour out. The symptoms might point to a vascular tumour, but this was not the case. How, then, did the bleeding occur? I believe it was caused by capillary oozing from the internal surface of the bladder, due to sudden hyperæmia from the collapse of the distended bladder. The much overstretched mucous membrane empties the bloodvessels. The sudden relaxation of the mucous membrane permits dilatation of the vessels, and probably oozing from the capillaries results. It is open to question how far nerve control of the capillaries is paralyzed by the over-distension. It is equivalent to the compression of a tightly-bandaged limb emptying the bloodvessels—when the bandage is relaxed, sudden and extreme hyperæmia occurs.

By rectal examination I gleaned little when the bladder was empty. When the bladder was full there was a large pear-shaped, softish swelling, which was evidently enlarged prostate, or else tumour of the base of the bladder—probably, from its consistence, "fibro-cellular."

On the 3rd of June I operated by the suprapubic method. The walls of the bladder were half an inch thick, and the cavity was not more than that of a large teacup. At the base of the bladder, in the trigone space, was a large conical tumour, which felt like a hypertrophied cervix, minus the os. The tumour lay about an inch from the orifice of the urethra, and, to my great surprise, I could easily pass my forefinger into the prostatic portion of the urethra. I snipped away part of the tumour, but the bleeding was so excessive and alarming that I had to check it by perchloride of iron, and then stitched the wall of the bladder to the abdominal wall. The cause of obstruction was now fully revealed. It lay, not in the urethra, but in the bladder, by the contact of the tumour with the pubis.

As the patient lay horizontally the tumour lay with its base also horizontal, with a space of nearly an inch between the tumour and the large orifice of the urethra. When the bladder is distended it rises, and the base of the tumour becomes more or less vertical; the apex of the tumour is then brought in contact with the urethra, and effectually closes it. In this way no urine can be forced out of the distended bladder; whilst in catheterization the beak of the instrument must either make a false passage through the tumour (not prostate, as often supposed), or be tilted up behind the pubis and in front of the tumour.

Many cases diagnosed as enlarged prostate may actually resemble this one, in which case false passages through the tumour might be good rather than harmful. It also illustrates why the patient could empty his bladder easier when it contained little and he lay on his back. The operation relieved all pain, but suppression of urine occurred suddenly on the third day, and he died.

The autopsy revealed great enlargement of the lateral lobes of the prostate, each being the size of a small hen-egg. The tumour was composed of fibro-cellular tissue, and corresponded to an enlarged middle lobe, if not actually such. The mucous membrane of the bladder was dotted over with several small villi. The pelves of the kidney were dilated, but not so the ureters. The kidneys were fatty.

V.—HYPNOTISM, OR PSYCHO-THERAPEUTICS.

By R. W. FELKIN, M.D., etc., Lecturer on Diseases of the Tropics and Climatology, Edinburgh.

(Continued from page 936.)

EPILEPSY has been treated for many years by hypnotism. In 1666 I find that Valentine Greatrakes cured a great number of cases, and the success with which he treated them is testified to by Boyle, the President of the Royal Society, as well as the Bishop of Surrey. It seems that Gassner in 1750 had great success in his treatment of cases of a like nature; and Dr Inglis of Halifax has also been successful; he relates a good case of a girl, 11 years old, whom he cured.¹

Coming to more recent times, we find that epilepsy has been treated with varying success. Liebault recommends that suggestions should be made between the attacks, and says that in many cases he has obtained good results. So, too, has Bernheim.²

Renterghem and Von Eeden have also treated six cases, four of which were cured; two, however, were unsuccessful.³

Most authors say that it is by no means easy to hypnotise persons suffering from insanity; yet it would not be advisable to state definitely that insanity is a bar to hypnotic treatment, for Voisin and others have, after great trouble it is true, been successful in treating a great number of insane persons. Voisin says that in treating patients suffering from insanity it is advisable to avoid inducing the cataleptic state, and only those cases are to be treated in which

¹ *Archiv für den Thierischen Magnetismus*, Leipzig; *Études cliniques sur la grande Hystérie ou Hystero-Epilepsie*; *Human Magnetism*, W. Newman, 1845; *Versucht über Geistersehen*, Schopenhauer; *Psycho-physiological Researches in the Dynamics of Magnetism, etc., in their Relation to Vital Force*, translated from the German by John Ashburne, M.D., 1853.

² *Suggestive Therapeutics*, p. 244; *Der moderne Hypnotismus*, Seeligmüller; *Deutsche Medicinische Wochenschrift*, 1888; *Lancet*, 1879; *British Medical Journal*, 1879-80.

³ *De la Suggestion et de ses applications a la pédagogie*, par le Dr Edg. Bérillon, 8vo, 1888, Paris, 40 bis. Rue de Rivoli; "De la Nécessité d'interdire les séances publiques d'Hypnotisme," par le Dr Guermouprez, *Revue d'Hypnotisme*, p. 8, 1888; *Bibliographie des modernen Hypnotismus*, Max Dessoir, Berlin, 1888 (801 works mentioned, written by 481 authors, and references to 207 periodicals); "Traitement des maladies mentales par la suggestion hypnotique," *Ann. méd. psychol.*, ser. 7, vol. iv. pp. 238-254, Paris, 1886; "Contribution à l'étude d'hypnotisme," *Jour. Soc. de Méd. et Pharm. de l'Isère*, vol. x. pp. 193-207.

suggestions can be made. The same author has, he states, cured persons suffering from hallucinations, delusions, disturbances of special and general sensation, as well as others afflicted by suicidal ideas, and acute and furious mania have disappeared under the use of hypnotism.¹ These statements have been confirmed by Dr Robertson, who has visited Voisin's Asylum; and one or two other speakers at the British Medical Association's meeting, when Voisin read his paper, concurred as to the possibility of treating insane patients, but drew attention to the fact that great labour was involved in such treatment. Moll, in referring to this subject, indicates the difficulty which is experienced in readily hypnotising insane patients; but both he, Forel, Burckhardt, Séglas, Dufour, and Pons, all believe that many cases of insanity, especially melancholia and mania, are amenable to hypnotic suggestion.²

Von Renterghem and Von Eeden give thirty-six cases treated by them, of which twenty were notably benefited.³

On the whole, our present knowledge of this intricate and most interesting subject does not warrant our stating that hypnotism can be utilized in treating the majority of insane persons; but from what has been done in the past we may conclude that, if physicians in charge of the insane have time and patience, considerable benefit may be obtained from hypnotism; and as we learn more both of hypnotism and of psychology, it may well be that the therapeutic uses of hypnotism will become of more value in this direction. The time required to hypnotise insane persons is at present the great drawback to its more extended use.

It is time now to pass from the foregoing practical considerations and facts in order to briefly examine some of the theories which are put forward to explain them.

Hypnotism is of such a nature that many do not believe in it at all, and others, for whom the facts are too strong to be utterly denied, require the definite exposition of a theory by which to explain them. This is all very well; we all want to know how a thing can happen before readily believing that it has happened, and therefore it would be well could we with any certainty explain how the facts recognised as happening during hypnotic sleep are or could be produced. It must be admitted that at present we labour under a great drawback with regard to hypnotism. We know what happens, or at least we may appreciate the results obtained, but the exact *modus operandi* in which they are attained

¹ *British Medical Journal*, vol. ii., 1889, p. 649.

² *Archiv de Neurolog.*, vol. x. pp. 376-395; "Hypnotisme et Folie," Garnier, *France Médicale*, vol. i. p. 554, Paris, 1886; "De l'hypnotisme jendrassik," *Archiv de Neurolog.*, vol. ii. pp. 362-380, and vol. xii. p. 53, Paris, 1886; "Guérison par l'hypnotisme de Déliré alcoolique," *Revue de l'hypnotisme*, Bremaud, vol. ii. p. 19, Paris, 1887; "Guérison par l'hypnotisme d'une manie des nouvelles accouchées," *Revue de l'hypnotisme*, p. 16, Paris, 1887; "Traitement hypnotique chez les aliénés," *Marseilles Médicale*, vol. xxiii. p. 619, 1886.

³ *Psycho-therapeutics*, 1889.

is far from being known or even perhaps being conceivable. The difficulties which surround the investigation of the why and wherefore of hypnotism are great, but at the same time there is every cause why an explanation should be sought, and it will not do to throw aside its investigation because of its difficulty or of the need there is of investigating at the same time the borderland between the material and the spiritual worlds. In many ways the investigation of hypnotism is only on a par with the investigation of many other subjects. What is, for instance, electricity? We do not know, but therefore we do not deny that it exists, because it must exist; it has a force which we can see, feel, and utilize. We have not yet arrived at a point where we can say that no new laws exist, nor where we can say that our present methods of investigation are the only ones which can be employed. We cannot now-a-days afford to interpret new facts by old ideas. The law of gravity is no less true because the law of magnetic attraction has been discovered, and it must be true that with greater knowledge new methods of investigation must claim our attention as progress in knowledge advances. As Bacon said—"No perfect discovery can be made upon a flat or a level, neither is it possible to discover the more remote and deeper parts of any science if you stand but upon the level of the same science and ascend not to a higher level."¹ Or as Du Prel puts it—"True progress is always in the depth, whereas every generation imagines that it leaves to its successors only the task of extension on the same level."² "Trusting the illusion of the senses by which sun, planet, and fixed stars seem to rise in the east and set in the west, the old Greeks set astronomy the task of explaining these apparent movements on the supposition that they were the true ones; this task proved continually more difficult; more and more cycles and epi-cycles seemed requisite to account for the observations, but it was always believed that the method was the right one, and that future generations had only to labour further on on the same level; but when the thought of Copernicus—anticipated (as we now know) in the teaching of Pythagoras and the Kabbala—exposed the sense illusion in which human understanding lay imprisoned, then it became also clear that success was not to be expected from further labour on the flat; a new vertical path of progress was laid down." I relate this instance because of its analogy to hypnotism. Ancients in all probability knew far more than we do now of the mind and perhaps of the soul too, and many would find it easy to explain the whole mysteries connected with hypnotism in relation to mind and matter by the well-known "seven principles." Be this as it may, it is probably unnecessary to ask for an unprejudiced and unbiassed study of the phenomena of hypnotism.

¹ *Advancement of Learning*, i. 5.

² *Philosophy of Mysticism*, vol. i. p. 3.

Du Prel's views may be stated somewhat as follows:—He imagines the mind as composed of two circles—the inner, the organic threshold of sensibility; the other exceeding the faculties of the normal, or inorganic, consciousness. In biological processes the psycho-physical threshold of sensibility has been continually moveable, and so in the succession of life forms there has been, not only a differentiation of the organs of sense, but also an exaltation of consciousness. A displacement of the threshold of sensibility is common to the biological process. As one ascends higher in the scale greater powers of consciousness are possessed, and in each species it is possible to displace forwards to a limited extent the threshold of consciousness. In other words, the mind or the intelligence of an individual belonging to a species may have its intelligence intensified or elevated to a slightly higher scale. Animals, such as the horse, dog, or elephant, possess high intelligence or instinct in their wild state, but it must be admitted that when caught and trained by man something is added or developed in them, so that their knowledge and intelligence is markedly augmented. Possibly it may be allowed that man is at present the highest type of being inhabiting the world, yet it will also be admitted by all students of mankind that a great difference exists amongst the various races of mankind, even amongst the various classes which compose the most civilized community. This being the case, are we to conclude that the final development of the intelligence has been reached? May we not rather suppose that a power exists which is capable of still further increasing mental capacity? In most persons man's place in Nature is limited by his five senses. This limitation acted in a more restricted sense centuries ago. Now, however, all-world communications having been introduced, and the sciences having made such enormous progress, man's position appears to have reached a higher level, and it is almost impossible to conceive that a full stop must be made now, and that progress must be barred by an immutable law. This has in past ages often enough been thought to be the case, yet the belief then entertained has proved fallacious, and so it almost certainly will again. I have just said that man's knowledge is limited by his five senses, but many of the most profound thinkers of this and past ages have believed, and not without proof, that there is a sixth sense which is possessed, although in the majority of cases it remains latent. If this be the case, doubtless progress in the future will be enormous, and there are many who believe that in hypnotism we possess a means of investigation which, if used aright, will lead to marvellous results in this connexion. If I felt capable of enlarging upon this subject, which I do not, this is not the place to do so, and even now I fear the editor will think I have overstepped my limits. Still I must further mention that Du Prel imagines that man possesses, as it were, two intelligences—one intimately bound up with and limited by the body, capable

of acting and receiving impressions alone through the body ; and one, though in intimate relation with the foregoing, which is the real ego, and capable of entering into other relations of a more ghostly or ethereal nature. He thinks that ordinary dreams occurring on going to sleep and awaking therefrom are simply phantasms, of the earth, earthy, and that a confused recollection of these phantasms is the dream all of us know so well. He thinks, however, that between these two states of semi-oblivion deep sleep occurs, in which the real ego is cut off from the five senses and the knowledge conveyed directly by them, and is free to live, as it were, a life of its own, during which its intellectual functions are active, and when it is possible for it to attain knowledge unattainable in the ordinary way. In real somnambulance what takes place intellectually is unknown to the common intelligence, but we know that it is possible for a somnambulist to see, to talk, to write, and, in fact, to possess heightened sensibilities whereby acts impossible during waking hours may be performed with certainty and ease. By means of hypnotism many maintain that it is possible to lift the veil and to investigate this higher intelligence or real ego, and some of the acts I have previously related may possibly prove this to be the case. At any rate, a person during a deep hypnotic sleep acts as a natural somnambulist acts.

I now proceed to quote very briefly the opinions held by other authorities in regard to the hypnotic condition.

In a paper which Preyer of Jena read in 1880 he dealt with sleep and hypnotism, and thought that sleep was due to the formation in brain and muscle of certain products termed by him *Ermüdungsstoffe* (fatigue-products), which products he believes to be easily oxidisable. "They accelerate the dissociation of the oxygen and hæmoglobin in the capillaries of the brain and muscles ; sleep then ensues, and the tissues which most depend upon the regular supply of oxygen, viz., the gray substance of the hemispheres and the muscles, are the first to be affected by the accumulation of *Ermüdungsstoffe*." He goes on to state his belief in the reality of hypnotism, and explains its production as follows :—"If by strong and sudden stimulation attention be forcibly concentrated on one impression, as in fright, then catalepsy is the consequence in both man and in animals. If the will direct consciousness to a certain point without any excitement, it will in many cases lose its power, and hypnotism is the consequence—abulia. Possibly this occurs because the oxygen of the arterial blood in the brain has so quickly been used up that there is not enough left to keep the gray matter of the hemispheres awake. The nervous cells are separated from each other by inactive regions, and, as in natural sleep, only certain centres remain active ; for example, the respiratory and other co-ordinating centres. Here, then, is a *terra incognita* ready to be explored.¹

¹ *British Medical Journal*, September 4, 1880, vol. ii. p. 381, *et seq.*

With reference to Preyer's theories of sleep I may also mention Lauder Brunton's views as expressed in his Croonian Lectures on the relationship between chemical structure and physiological action.¹ "The cells of living organisms (also) break down albuminous matter in the course of the functional activity, and alkaloids are formed in the healthy body, to which the name of leucomaines has been given. An interesting observation has been made by Bouchard, to the effect that the alkaloids formed during sleep have a stimulating action, so that when they accumulate to a certain extent they tend to excite the nervous system and make the person awake. Those, on the other hand, which are formed during the waking hours have a depressant action, and tend to bring about a condition of sleep. There is thus a sort of self regulation in the processes of life by which waking and sleeping are alternately ensured."

"In healthy sleep the person becomes unconscious of the external world; voluntary action ceases, and even the automatic centres for respiration and circulation act less energetically, so that the breathing becomes slow, the pulse quiet, and the vessels tend to dilate. . . . This condition of the vessels has been regarded by some as a cause of sleep rather than its consequence, for the two principles to explain sleep are—first, that it depends upon anæmia of the brain, and, secondly, that it is due to an exhausted or inactive condition of the brain cells. In all probability the truth is that it depends upon the condition of the brain cells, but this is so much influenced by the circulation that frequently the condition of sleeping or waking will depend entirely upon the cerebral circulation. We shall understand this more easily by referring again to Ehrlich's experiments upon oxidation and reduction in the tissues. You will remember that the gray substance of the brain is possessed of a great power of reduction, as shown by the readiness with which it reduces aniline colours after death, but during life the necessity for oxygen is so great that it retains within it a sufficient quantity of stored up oxygen to prevent such reduction taking place under ordinary circumstances; but if its functional activity be augmented by stimulation, its store of oxygen is used up, and thus it becomes ready at once to reduce. Its very activity, however, gives rise to the formation of acid products which lessen its reducing power, so that the mere supply of fresh oxygen would not be sufficient to restore it to its previous condition unless the acid were neutralized. Arterial blood supplies both these requirements, neutralizing the acid and giving off oxygen to the brain cells." Thus in some conditions of the brain simple increase in the supply of arterial blood will restore functional activity and cause wakefulness, while diminished supply will produce sleep. Food induces sleep by dilatation of abdominal vessels. "We cannot see the intestinal vessel, but we know that

¹ *British Medical Journal*, 1889, vol. i. pp. 1389, 1455, et seq.

the abdominal vessels are thin in front, and it is almost certain that external cold will act through the abdominal walls on the intestinal vessels, and cause them to contract. Such contraction will also drive the blood to the brain, and tend to prevent sleep, but warmth to the abdomen will tend to relax them, and induce sleep. This is probably the reason why dogs before going to sleep curl themselves up, so that their abdomen is kept warm by their limbs; and men do the same thing when exposed to external cold. In cases where blood tension is high, as in chronic Bright's disease, we often find troublesome insomnia; whereas in cases of debility with low tension we often find troublesome drowsiness. One condition of the circulation is therefore a most important factor in the production of sleep, but it will, by itself, no more explain completely the insensibility of sleep than it will that of anæsthesia."

It is probable that the products of tissue waste by day and by night exert some influence. At all events Bouchard has found that the toxic substances excreted in the urine during the day have a soporific action, while those excreted during the night have a stimulating action.

"It would thus appear that there is a sort of self-regulating mechanism in the body by which sleeping and waking are made to alternate. During the waking hours soporific products are formed, and these, gradually accumulating, will by-and-by induce sleep; while during sleep stimulating products are formed which, after a certain number of hours, will stimulate the brain to wakefulness."

"Now Voit found that during the waking hours more carbonic acid is given off, while during sleep the reverse is the case, and more oxygen is absorbed than carbonic acid eliminated. It is therefore evident that during waking the organism as a whole is an oxidising agent, while during sleep it is acting as a reducing agent."¹

Dr Cane published an interesting paper on the physiology of dreams last year, which, summarized, may be expressed as follows:—"The physiological facts he reviewed go to prove that sleep is not a condition of intelligism, but that intelligism is ever ready to receive any impression conveyed to it, and has a power of being aware that objects resemble each other. In the sleeping condition it is presented with an ever-varying procession of complex impressions, any one of which may dominate the aspect of others. These are imperfectly supplied by the nerves of hearing, sight, touch, taste, and smell. They are judged to be things which they resemble or suggest, and with the changing material supplied are continuously construed into a record of misinterpreted objects and events,—in fact the intelligism is doing what we sometimes half knowingly experience when in fog, or dust, or darkness we mistake objects for others which they seem like. We also sometimes do this with our full knowledge, when we imagine picture

¹ *British Medical Journal*, p. 346, 1879, vol. ii.

forms in the glowing embers, or amid fantastic rock and scenery, or mountain scenery, or in the clouds that float across the sky. We know, too, that long-forgotten names, and persons, and places will come to memory at the odour of a flower, the sound of a voice, or a strain of music such as we experienced long ago. When a great city is wrapt in the quiet of night we begin to perceive many strange sounds and sights which escaped us in the busy hum and glare of day. When the body is wrapped in sleep the intelligism is then free to notice the auto-suggestions which come modified by partially transmitted external stimuli, and perhaps changed by pathological conditions. In sleep the mind is not engaged with thoughts, but with molecular processes, and these processes are the great factors in the etiology of dreams, delirium, and mental diseases.

Dr Isaac Ott thinks that "the hypnotic state can be explained by sensory irritation, produced by the bisulphate of carbon, calling ganglia at the base of the brain into activity, which ganglia have an inhibitory power."

In 1882 Charcot made a series of communications to the Biological Society of Paris, which, although having reference to the phenomena due to the application of the galvanic current through the cranium of hypnotised hysterical patients, have some reference to the point now under consideration. "In such patients," he says, "there exists a state of neurotic superexcitability characterized by an aptitude of the nerves and muscles to act under the influence of a mechanical stimulus. . . . This superexcitability resides not only in the muscles and nerves, but in the motor regions of the cerebral centre; thus the galvanic current acting on one side of the cranium produces sudden muscular starts in the face and limbs of the opposite side, while the same current does not give rise to any contraction when the patient is awake. . . ."

It may be presumed that during the hypnotic lethargy there is a special excitability of certain regions of the brain. How the current passes through the bones of the cranium is a question which M. Charcot does not attempt to solve at present. The important fact is that the motor-cerebral regions are sensible to the influence of the galvanic current. M. Charcot offers his experiments to the criticism of his colleagues, suggesting only that the excitability of the dura mater may perhaps give some clue to a solution. His suggestion is based on the results of the well-known experiments of Marshall Hall, Brown-Sequard, Bochefontaine, and Duret.¹

In a paper read in 1888 by Professor Forel before the Gesellschaft der Aerzte in Zurich, he gave an account of experiments in hypnotism on seventy-two persons. His theory is that the hypnotic sleep is simply an artificially produced sleep, modified in so far that the hypnotiser is able to influence the course of the suc-

¹ *British Medical Journal*, 1882, vol. i. p. 276.

ject's dreams,—“Any disappearance of nervous symptoms under the influence of hypnotism is to be explained exactly in the same way as the cessation of pain (for example, toothache, sciatica, etc.), which, as is well known, often follows sudden fright, etc.” In other words,—“It is to be attributed to cerebral inhibitory processes caused by intensive dreams.” “A deep-rooted morbid irritation cannot be removed by hypnotisation.”¹

Moll's ideas with regard to the production of hypnotism may be briefly summarized as follows:—We see how easily a suggestion given to a hypnotised person is received. A movement is suggested; it is at once made. An objective idea is suggested, and the necessary delusion is produced. In ordinary life suggestions are received and acted upon, but when hypnotised a person is more impressed, because the hypnotiser assures him of the expected result. The newest researches in psychology lead one to expect such a result. When a person is hypnotised there is a paralysis of inhibition produced. In other words, the person hypnotised is only capable of passive observation. He is unable to correct by other senses an impression placed before him by the hypnotiser—*e.g.*, a hypnotised person is told that he sees a dog; he believes he sees it because he cannot use his eyes to correct the imagination of a dog called to his consciousness by the spoken word. Active consciousness is inhibited; passive consciousness is awake. When out of several impressions one is chosen by the action of the will, and observation is fixed upon that one, that is an active observation; when out of several impressions one forces itself upon the consciousness to the obliteration of all others, then there is only passive consciousness.²

William James has written a highly interesting paper on “The Hidden Self.”³ In it he says,—“If there is anything which human history demonstrates, it is the slowness with which the ordinary academic and critical mind acknowledges facts to exist which present themselves as wild fancies with no stall or pigeon-hole, or as facts which threaten to break up the accepted system. Mystics are always right about facts; the scientists get the better in theories.” He goes on to point out that it must be admitted that, in certain persons at least, the total possible consciousness may be split into parts which coexist and mutually ignore each other, and that the objects of knowledge between them, and, more remarkable still, are complimentary. Give an object to one of the consciousnesses, and by the mere fact of so doing you remove it from the other or others. Barring a certain common fund of information, like the command of language, etc., what the upper self knows the under self is ignorant of, and *vice versa*. “The anæsthesias, paralysees, etc., from which hysterics seem to suffer, appear, then, to be

¹ *British Medical Journal*, 1888, vol. i. p. 1031.

² Moll, *Der Hypnotismus*, p. 152, *et seq.*

³ *Scribner's Magazine*, No. 39, March 1890, vol. vii.

due to the fact that the secondary personage has enriched itself by robbing the primary one of a function which the latter ought to have retained. The curative indication is evident: get at the secondary personage by hypnotism, or in whatever other way, and make him give up the eye, the skin, the arm, or whatever the affected part may be. The normal self thereupon regains possession—sees, feels, or is able to move again.”

Some of James's references to hysteria and hypnotism and the recollection of the origin of a disease are well worth referring to, as they contain a hint of a method of investigation and treatment which I think of some importance. James thinks that a waking hysteric is in the same condition as a well person in a hypnotic trance, and also that the hysterical mind is the contraction of the field of consciousness,—that is to say, the hysterical person either forgets or is unable to attend to two things at once, and so may ignore an eye or a hand, may see but not hear, may speak but not feel, etc. If motor sense is lost, the patient must perforce define movements to his mind in visual terms. James thinks that the hysterical crisis may be often based upon previous experience, and he refers to the case of a patient named Lucie who had a fright when a child; she also suffered from sleep-walking, and she was once confined in a dark room for some time on account of disease of the eyes. When an attack of hysteria comes on she experiences the old fright, etc. She is hypnotised, and then explains what had happened to her when a child. James therefore suggests that much information regarding the origin of obscure diseases may be arrived at during the hypnotic state. As a memory can be recalled, so a memory can be obliterated by hypnotism.¹

With regard to post-hypnotic suggestions, the same author believes that the second self is awake and watching for the time to act. It is, therefore, to no “automatism,” in the mechanical sense, that such acts are due; a self presides over them, a “split-off,” limited and buried, but yet a fully conscious self. When the moment comes for the act to be done, the subject lapses into trance again, and has no subsequent recollection of what takes place—in this moment of time fresh suggestions can be given. The author quotes one or two very interesting cases in this connexion.²

In G. J. Romanes's preface to Heidenhain's *Animal Magnetism*, he concludes that Braid's theory that the cerebral circulation was in some way altered by hypnotism can scarcely be accepted as any explanation of the cause of hypnotism, for various animals having different types of circulatory apparatus can all be hypnotised.

¹ *Scribner's Magazine*, March 1890.

² See also *Somnolism and Psychism*, J. W. Haddock, M.D., 1851. *Isis Revelata*, J. C. Colquhoun, 1836. *Mémoire pour servir à l'histoire et à l'établissement du magnétisme animal*. *Manuel de l'étudiant magnétiseur*, Du Potet, Paris, 1868.

"Inhibition, however, that principle which has such a general application to the nerve centres of various species of animals, will probably prove to be the one from which the explanation must be sought."¹

Before proceeding to give Heidenhain's view with regard to the production of hypnotism, one or two quotations from his book may be given. He says,—“The sensory impression leaves behind, in the perceptive ganglion cells of the first order, material changes, which are not propagated during hypnosis to the sensorial cells of the cortex of the brain. These changes in the former region are after the awaking so increased by every small stimulus that they now pass to the liberated sensorial ganglion cells and set them in activity. The smallest strength of stimulation sufficient to produce sensation is called, after Fechner, the liminal value of stimulation.” Now in hypnotised persons the liminal value of stimulation is extraordinarily high. In the case of hypnotised persons the depression of the activity of certain parts of the brain is beyond all question; the increase of reflex irritability observed in them is therefore no new physiological experience. “I am inclined to consider that the hypnotic state is nothing more than an artificially produced catalepsy.” And he goes on to say that probably the cerebral cortex is not the sole part whose activity is inhibited, for otherwise the phenomena which hypnotised people present would be a repetition of those observed in animals after the removal of the cerebral cortex, but the phenomena, although there are points of resemblance, are not identical. He thinks, however, that a certain functional disturbance of the cerebral cortex takes place, which “explains why hypnotised persons neither acquire any conscious perception as the result of sensory impressions, nor spontaneously make voluntary movements. Under normal circumstances movements can be not only initiated by the cerebral cortex, but also inhibited. In the hypnotised subject both powers are absent.” In any case there is absence of the inhibiting power of the will, and Heidenhain first thought it was due to cerebral anæmia, but after experimenting on the subject he now holds it to be quite proved that this cannot be, owing to the flushing of the face and to Förster's ophthalmological observations, which resulted in showing that the central retinal vessels are not contracted. He was further confirmed in his opinion by the action of nitrite of amyl, which was administered to two subjects, and yet they were hypnotised more decidedly during its action than either before or after the drug had been inhaled. He finally states his belief thus,—“The hypothesis that the cause of the phenomena of hypnotism lies in the inhibition of the activity of the ganglion cells of the cerebral cortex is not a too adventurous one, the inhibition being brought about by the gentle prolonged stimulation of the sensory nerves of

¹ *Animal Magnetism*, Heidenhain, 1888, Preface, p. xi.

the face or of the auditory or optic nerves." For the reasoning upon which his belief is based I must refer the reader to his book.¹

In referring to hypnotism, D. Hack Tuke is of opinion that Hunter's remarks, written nearly a century ago, really contain the gist of all that has been written since. He said, "I am confident that I can fix my attention to any part until I have a sensation in that part." He clearly believes that expectant attention and the imagination are the explanation of hypnotism, although he is careful to state, "It does not follow from this explanation that imagination, expectation, and kindred states of mind, explain *all* the phenomena produced by mesmerists, nor indeed does it *necessarily* follow that the same phenomena are always due to the same cause. For our present purpose, however, we are justified in saying that certain purely psychical agencies produce certain physical results."²

Maudesley, in writing upon this subject, expresses his belief that hypnotism, somnambulism, and allied states, are extreme instances of the operation of known laws. He considers that "the conditions of the induction of the abnormal state of consciousness seem to be —1, a nervous system that is more than usually susceptible and unstable; and, 2, the exercise of a fixed and strained attention for a short time. . . . We perceive, then, that by giving a particular strain of fixed activity to the nervous system, its ordinary functions may be suspended, and it may be made insensible, so long as the isolated activity continues to the impressions which ordinarily affect it. What is the intimate change in the nerve-element which produces this state of non-conduction between associated nerve-centres, this discontinuity of function in spite of continuity of connecting fibres, we know not. It must suffice for the present to know that a particular form of activity is capable of reaching such a pitch as to suspend or inhibit while it lasts the ordinary functions of the nervous system; and to know this, furthermore, by instances in which the supposition of a transmission of any peculiar force from the operator to the creature operated upon may be confidently rejected." In mentioning profound reverie, in which a person is unconscious of what is happening around him, Maudesley considers that "there is a tract or an area of activity lit up by consciousness while all around are darkness and inactivity." And again, in regard to the well-known fact that an acute pain notably renders us insensible to a lesser pain, he thinks "that the message sent to the central ganglion by it (the lesser pain) no longer awakens any notice, for there is a local suspension or inhibition of its sensory functions in consequence of the abstraction of consciousness by a neighbouring predominant activity. . . .

¹ *Animal Magnetism*, Heidenhain, pp. 16, 25, 40, 41, 46.

² *Illustrations of the Influence of the Mind upon the Body*, D. Hack Tuke, M.D., second edition, vol. i., 1884.

It might be set down as a general law, that given two nerve centres of mental function, they cannot be in equally conscious function at the same time. If the one is actively conscious, the other will be sub-conscious or not conscious at all; and if the one reaches a certain height of activity, the effect of the other will be entirely inhibitory—it will be rendered temporarily incapable of function." He thinks that in the hypnotic state the subject is less sensible to external stimuli than in natural sleep, but more so to the stimulus exerted by the operator's voice, and that if undivided attention is kept up to a single idea, the general activities of the brain are diminished—in fact, sleep ensues.¹

Lastly, I will briefly give Bernheim's ideas.² He strenuously holds that all the phenomena of hypnotism are due to suggestion; that it is the influence exerted by an idea which has been suggested to, and received by, the mind which causes the hypnotic state; that this is not due to an abnormal and physiological condition, but that the same laws that govern the normal organism govern the organism which is experimentally and pathologically modified. "As a psychical organ, the brain not only intervenes to moderate reflex action, but also intervenes to correct, to interpret, to rectify impressions imperfectly transmitted by our sensory organs or suggested by an external influence" (p. 130). The normal physiological state shows, in a rudimentary manner, phenomena analogous to those which are observed in hypnotism; that Nature does not contradict herself, and that there exists in our cerebro-spinal nervous apparatus an automatism by which we accomplish certain highly intricate acts unconsciously and involuntarily, and through which we submit to a certain extent to orders which are given us, to movements which are communicated to us, and to sensory illusions which are suggested to us. They also demonstrate that the condition of consciousness intervenes to modify or neutralize automatic action and to rectify or destroy false impressions insinuated into the nervous centres. Suppress consciousness, suppress voluntary cerebral activity, and we have somnambulism" (p. 134). " . . . Consciousness and will are, doubtless, weakened in cases of profound sleep; the more intense the sleep is the less the subject's spontaneity and the greater docility to suggestions; but this profound sleep and weakness of will and consciousness are not necessary for the manifestation of suggestive phenomena."

I may summarize what follows by saying that Bernheim believes that in hypnotised subjects there is a peculiar aptitude for transforming the idea received into an act; that there is an exaltation of ideal-motor reflex excitability which effects the unconscious transformation of the thought into movement unknown to the will, and also the exaltation of the ideo-sensorial reflex excitability which effects the unconscious transformation of the thought into sensation

¹ *Pathology of Mind*, H. Maudesley, 1879, p. 50, *et seq.*

² *Suggestive Therapeutics*, Bernheim, 1889.

or into a sensory image. In fact, in hypnotism "the ideo-reflex excitability is increased in the brain, so that any idea received is immediately transformed into an act without the controlling portion of the brain, the higher centres, being able to prevent the transformation."

Space forbids me quoting any more theories with regard to the production of hypnotism. I have endeavoured above to illustrate briefly some of the various lines upon which a solution may be sought, but I think it must be confessed that at present we have insufficient grounds upon which to base any satisfactory explanation of the curiosities and mysteries of the hypnotic process. A great deal more information is desirable from psychologists and physiologists before it will be possible to go much further in the matter, and it will be necessary to define more accurately than has yet been possible what definite parts of the central nervous system are affected during hypnotism. It is also necessary to ascertain far more minutely the intimate relation between the ganglion cells in the brain itself.

I must now conclude. I am well aware that much more might be written on the subject, but I have already occupied more space than I originally intended. If what I have written serves in any way to stimulate investigation which may lead to a fuller knowledge of hypnotism, and thereby to the relief of suffering, I shall be well content.

I have to acknowledge my obligations to many authors. The titles of most of the works referred to will be found in the footnotes. I have also to thank various friends, and especially Drs Van Renterghem and Van Eeden of Amsterdam, who most kindly allowed me to witness their methods of treatment by hypnotic suggestion.

A calm temperament, a firm will, and unlimited patience, are necessary to any one who wishes to become a successful hypnotiser.

VI.—THE PHYSIOLOGY OF THE CELL CONSIDERED IN RELATION TO ITS PATHOLOGY.

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(Continued from page 943.)

LET us now consider, very briefly, the sulphuretted hydrogen reactions of the cholera group of microbes as exhibited in our second table. The presence or absence of air in this case, as we shall see, exerts a very marked influence on the nature of the products set free. Thus, when grown on bouillon, Finkler and Miller's bacilli act apparently in the same manner on the medium

whether oxygen be present or excluded, while the cholera organism and Deneke's bacillus, on the other hand, react in a different way, as under the latter condition we have a blackening of the lead paper. On yolk of egg all four organisms produce H_2S both aerobically and anaerobically. We are confronted by a very different state of matters when we examine their reactions on white of egg; there cholera alone is able to set free H_2S , and this, too, only when the air is excluded. On coagulated egg albumen the result is even more striking, as aerobically none of the organisms produce H_2S , while under conditions of anaerobiosis it is present in the case of all four. If we now consider the reactions of the group as a whole, the tendency of the organisms to produce H_2S in every case when the air is excluded is at once apparent. If a microbe produces this body aerobically, we may at once conclude that it will also produce it anaerobically, and that, too, in much larger quantity.¹ Again, when a microbe is grown on a certain medium in presence of oxygen no H_2S may be produced, but when oxygen is excluded this splitting power of the microbe from which H_2S results may be called into play. This is easily explicable if it be the case, as suggested by Hueppe, that the splitting up of the albuminoid molecule with the separation of H_2S is that dissociation by means of which the greatest amount of energy would be set free. We should then expect to find this substance as frequently under conditions of anaerobiosis as we find CO_2 and hydrogen as products resulting from the splitting up of the carbohydrates under the same conditions. That is to say, if the microbe can, under any circumstances, split up the medium in such a way that H_2S is set free, this action should come into operation when the air is excluded. We have, accordingly, in this reaction an index of the potential splitting power of the protoplasm of an organism as regards any medium, and this may even be used to distinguish it from nearly allied forms. Thus the production of H_2S from white of egg by cholera immediately separates it from the other three organisms. Although we have here considered the process only in its catabolic aspects as supplying energy to the microbe, it is scarcely necessary to state that this stands in the very closest relation to the anabolism of the organism, as the dissociation may be a change preparatory to one of the

¹ The production of larger quantities under anaerobiosis is explained by the fact that as under this condition oxidation is excluded as a source of energy, the organism is obliged to dissociate relatively larger quantities of the medium to cover the energy requirements of the microbe. It is, indeed, another example of that fact upon which Pasteur has founded his theory of fermentation, that where oxygen is excluded, relatively larger quantities of the specific products are heaped up than when air is present. Pasteur, however, accounts for this by the supposition that the yeasts break up the sugar to obtain oxygen, and that accordingly when air is completely excluded larger quantities must be decomposed to satisfy the oxygen requirements of the organisms. *Vide Pasteur, Études sur la bière*, Paris, 1876, chapitre vi. p. 229. Hoppe-Seyler, *Ueber die Einwirkung des Sauerstoffes auf Gährungen*. (Festschrift), Strassburg, 1881. Nencki, *Archiv f. exp. Path. u. Pharm.* Bd. xxi., S. 299, 1886.

products being built up into the substance of the organism. In consequence of this, that dissociation of the medium which would set free the largest amount of energy may not necessarily come into operation under conditions of anaerobiosis, as this may not stand in direct or appropriate relation to the metabolism of the organism as a whole.

We have up to the present considered only the presence or absence of air as modifying the metabolism—thus, however, indicating the many-sided nature of the protoplasm of micro-organisms. There may be now mentioned other examples of this selective action, in virtue of which, under a given condition, one out of several potentialities of the protoplasm of the organism may come into play. In Table II., in which are given the sulphuretted hydrogen experiments, it is seen that all four organisms when grown on solidified blood serum gave rise to the formation of this gas, and it may be added that there was also liquefaction of the nutrient substratum. It was found, however, that if 8 per cent. glycerine had been added to the blood serum, both the formation of H_2S and peptonization of the medium occurred at a much later stage. This is to be ascribed to the fact that these organisms under such conditions apparently take their energy first from the more easily decomposed carbohydrate, and that they only resort to the albuminoids when this source has become exhausted. In a similar manner the H_2S bacillus which had been separated from the intestine, when grown in sugar bouillon to which peptone had been added, seemed to attack the albuminoids, and produce H_2S only after the sugar had been used up. Lauder Brunton and Macfadyen have shown that a peptonizing ferment was produced by a bacillus when grown on albuminoids, and a diastatic only when it was grown in starch solutions, both being produced in direct relation to the special temporary requirements of the organism. Dubrunfaut found that yeasts, when they break up cane-sugar or lactose into levulose and dextrose, do not act on these two bodies alike, but that they first attack all the dextrose, and only then resort to the levulose. This special selective action of the protoplasm exerted on such nearly allied carbohydrates may perhaps be applied to the solution of a very difficult question in relation to the animal fats. The fats obtained from each species of animal have, in most cases, a characteristic composition, this depending chiefly on the relative proportion of the three fatty acids combined with glycerine, of which they all essentially consist. Now, as the character of the fat stored up in the animal does not, apparently, vary greatly with the nature of the fat taken as food, we must ascribe this to a preferential action of the cells as regards those fats which are decomposed in the normal metabolism, leaving the others in certain proportions to be stored up as reserve material.

We have just seen that an organism may have several ways of acting on a medium according to the conditions to which it is

exposed, and that of several even closely allied substances offered it as food it may select one in preference to the others. It may, perhaps, here be asked on what this selective action of the protoplasm depends? Darwin in his theories of Natural Selection and Pangenesis has attempted to explain on purely physical principles the phenomena of variation and inheritance; and Huxley, in a passage which we quote, would appear to refer such actions in the protoplasm to a similar principle. He says, "It is a probable hypothesis that what the world is to organisms in general, each organism is to the molecules of which it is composed. Multitudes of these having diverse tendencies are competing with one another for opportunities to exist and multiply, and the organism as a whole is as much the product of the molecules which are victorious as the fauna or flora of a country is the product of the victorious organic beings in it." While admitting that that action which comes into play, and the habit which may possibly be formed by its continued exercise, may be looked upon as being the survival of such a struggle, and will be that best suited for these conditions, we must qualify this by the additional statement, that that one of the potentialities of the protoplasm which comes into play under a given condition in any case varies with the organism with which we are dealing. Thus most yeasts produce relatively more alcohol when air is excluded, but Duclaux has observed that his milk sugar yeast then produced much less, and if grown for some time under this condition appeared to lose in part the faculty of producing alcohol. In a similar way the degree of activity to which a lactic acid bacterium or yeast ferment can attain, as we shall see later, appears in each case to have a definite limit, and this, as well as the fixity with which the property is retained, varies with the organism under consideration. This no doubt depends upon the present potentialities of the protoplasm and the inter-relation of its various functions, and these again result or have been modified by the constant adjustment which has taken place between the organism and its environment in the course of its evolution. That is to say, that if we were fully acquainted with the *phylogenesis* of an organism we should be more able to understand those specialities of the protoplasm, our ignorance of the cause of which we at present attempt to hide by stating that they depend on the specific nature of the protoplasm.

The protoplasm of an organism is, as we have already stated, a molecular mechanism, the manifestation of whose functions depends on the using up of energy, which it must obtain directly or indirectly from outside. This is usually obtained from the food by a process which has been very graphically described by Foster¹ in the following passage:—"Matter which is passing through the phase of life rolls up the ascending steps to the top, and forthwith rolls down on the other side. Further, the

¹ *Encycl. Brit.*, Art. "Physiology," vol. xix. p. 13.

dead food, itself fairly but far from wholly stable in character, becomes more and more unstable as it rises into the more complex living material. It becomes more and more explosive, and when it reaches the summit its equilibrium is overthrown, and it actually explodes. The whole downward stair of events seems in fact to be a series of explosions, by means of which the energy latent in the dead food, and augmented by the touches by which the dead food becomes living protoplasm, is set free. Some of this freed energy is used up again within the material itself, in order to carry on this vivification of dead matter; the rest leaves the body as heat or motion." This passage is evidently intended more to suggest than to describe the process, for study of the metabolism of lower organisms makes it at once very evident that this could only have been at most the original action of the protoplasm, which now exerts this power only in a very restricted way.

Microbes do not now appear to exhaust the energy latent in their food by resolving it by oxidation to its lowest stage, nor does the food apparently require to form an integral part of the protoplasm before it undergoes its disintegrative changes. Thus if yeast is sown in a sugar solution containing small quantities of nitrogenous material it rapidly splits it up into alcohol and carbonic acid, but there the process ceases. If we wish to see the process carried out still further, we may add one of the acetic ferments, when we have the alcohol C_2H_5O oxidised into acetic acid $C_2H_4O_2$, and to complete the transformation into CO_2 and H_2O the aid of yet another organism must be called in. Similarly the lactic acid ferment converts milk-sugar into lactic acid, the butyric ferment transforms this into butyric acid, and to complete the process of combustion other organisms must apparently again intervene.

The lactic acid bacilli appear to exert no action, or very little, on the albuminoid constituents of milk, the peptonization and breaking down of which appear to be due chiefly to several members of the potato bacillus group, which, on the other hand, appear to exert little action on the carbohydrates. Hauser, studying the process of putrefaction, has separated several organisms which are able, as pure cultures, to produce the characteristic products, but much more slowly than we should expect. In a state of nature a whole series of organisms take part in the process by a physiological division of labour, the different organisms becoming apparently adapted to different stages of the process, so that a much more rapid resolution of the organic matter into its ultimate products occurs than in our laboratory experiments. We have thus a specialization of function of organisms as regards the way in which they obtain their energy, in consequence of which each tends to become more or less closely adapted to carry out a certain stage in the breaking down process, the special powers of dissociation

becoming at the same time proportionately developed to overtake the increased work that is now thrown upon them. Thus those microbes which have become specialized to split up the carbohydrates give rise, when grown on them, to the phenomena of fermentation. Others have become adapted to the different stages in the splitting up of albumen. Some of these adapted to the earlier stages of putrefaction may, at the same time, be parasites to certain species of animals if they are able to dissociate the living albumen, and so give rise to products which exert a toxic action on the host. Thus an organism may be a cause of both putrefaction and disease, as in the case of the organisms of mouse septicæmia, rabbit septicæmia, and malignant œdema.¹ This limitation of the metabolic activities of organisms, or rather this specialization of their action, may not always be so evident as in the case of pathogenic, pigment-forming, and ferment-acting organisms, but this is to be ascribed, often, to our lack of knowledge of the products formed, many of which have not any striking or characteristic features. It must, however, be carefully borne in mind that an organism may have several different habits—adaptations—which, like the different faces of a dice cube, may co-exist in the protoplasm without the one interfering with the other, each being ready to come into action on the application of its own appropriate stimulus. Thus, as Hueppe has pointed out, Koch's cholera bacillus, grown on albumen, produces toxins, and is pathogenic; on sugar it produces butyric acid, and is a ferment; while on potatoes it gives rise to a brown pigment, and is a chromogenic organism. Although these different habits of the protoplasm may not directly affect each other, yet, as Duclaux has recently insisted, we cannot with absolute impunity transfer organisms from one medium to another. If a certain number are introduced into a new medium there is at first a great falling off in these, and only later is there that rapid increase in number, such as might at first sight have been expected from the commencement. Of those originally introduced a certain number are unable to adapt themselves sufficiently rapidly to the new conditions of life and metabolism,—the wheels of the vital machine are, as it were, thrown out of gear, and many of the organisms perish. The increase only occurs when those which have become accustomed to the new environment begin to multiply.

One adaptation may, however, lead to the weakening of a previous one. As when an organism becomes accustomed to metabolise one medium, the original capacity of acting on some other body may be seriously affected. Thus the organisms which cause milk

¹ Yet these organisms may probably acquire a greater virulence by adaptation to the conditions present in the animal body by passage through several individuals of a series, e.g., swine plague and quarter evil seem to be only the more highly developed parasitic forms of mouse septicæmia and malignant œdema. See also Hueppe, *Über die Beziehungen der Fäulnis zu der Infektionskrankheiten*, 1887.

to turn sour are probably ordinary saprophytes, which have become adapted to the conditions present in milk, especially that of splitting the milk-sugar into lactic acid.¹ Now Warrington² observed, that *streptococcus scarlatinæ* (Klein) which, when freshly obtained, is able to coagulate the milk by the acid it formed on being cultivated for 18 months on gelatine, no longer produced sufficient acid to effect this. The habit of taking its nutriment from albuminoids had resulted in a great loss of its former power of acting on carbohydrates. Grotenfeld has investigated the effect of cultivation of lactic acid bacteria on gelatine for different periods on the rapidity with which they produced their acid when again allowed to act on sugar. Some organisms lost this power rapidly; others, again, were very stable. This bore no relation to the original virulence³ of the organisms, as some of those which most rapidly coagulated the milk were the first to lose this power. The degree of fixity with which the faculty is retained varies with the organism depending on the specific nature of the protoplasm. It is to be regretted that Grotenfeld did not enlarge the scope of his research by growing the more stable forms on other media than gelatine, on which new properties of the protoplasm might have come into play, and the original become weakened. It is a matter of frequent observation, that parasitic bacteria when grown on our artificial media lose their pathogenic power, *e.g.*, the organisms of glanders, anthrax, cholera, erysipelas, tubercle, and gonorrhœa. The tubercle bacillus is the most confirmed parasitic organism we have yet been able to cultivate outside the animal body. It was at first cultivated only on blood serum at the temperature of the animal body, and even then required nearly three weeks to exhibit macroscopic growth. After Koch had grown his original culture over 60 times on blood serum (since 1881) it still remained virulent. It was then noted by Roux that the tubercle bacillus could be grown much more luxuriantly on agar-agar and bouillon, to which glycerine had been added, than on blood serum. The method naturally came into general use, but many observers soon reported that these cultures, though growing so luxuriantly, had lost their infective action on even those animals most sensitive to tuberculosis. This increased power of growth of parasitic bacteria on artificial media, accompanied as it is by a loss of the pathogenic power, may be regarded as a simple case of reversion to the saprophytic state—that is as an example of atavism.⁴

The adaptation of organisms, which we have just been con-

¹ Grotenfeld, *Fortschritte der Medicin*, 1889.

² *Journal of the Chemical Society*, 1888.

³ We here speak of the virulence of the lactic acid bacillus in the same way that we speak of the specific activity or virulence of a pathogenic organism.

⁴ It must not, however, be concluded from this that the saprophytic form from which tubercle, probably many centuries ago, originated, may have been able to act in this way on a glycerine medium. It may be that the change in the organism as a whole which was correlated with

sidering, on certain stages in the disintegration of organic bodies, as, for instance, that of yeast on sugar, renders very improbable that picture of the metabolic processes which Foster has given us, in which the food, in this case sugar, has first to be built up into the protoplasm, and then has to undergo a series of successive dissociations and oxidations until it is resolved into CO_2 and H_2O . In the first place, the sugar is broken up only as far as $\text{C}_2\text{H}_6\text{O}$ and CO_2 , and the rapidity with which the alcoholic fermentation proceeds is alone sufficient to negative the idea of the sugar having been built up into protoplasm. Thus Dumas¹ found that 20 grams of yeast were able to decompose 1 gram of sugar in 24 minutes, a time insufficient, according to our present ideas, to permit of its having formed, in any real sense, a part of the organism. Another fact discovered at the same time by Dumas corroborates this view. He found that yeast in the proportion of 20 grams to 1 of sugar acts as rapidly as when there is a proportion of 100 grams of yeast to 1 of sugar,—that is to say, that the addition of more than a certain proportion of yeast cells to the solution of sugar does not increase the rate of the fermentation, the cells, indeed, in such cases, seeming to interfere with each other's action. Now, if, as Schutzenberger remarks,² the decomposition of the sugar takes place in the interior of each cell, into which it must first penetrate, and if it is to be attributed to the nutrition of the yeast globules, it would seem that the rapidity of decomposition of the same quantity of sugar ought to increase directly and indefinitely with the number of cells in action, just as the quantity of food consumed at a meal increases with the number of guests. That this is not the case is an argument in favour of regarding the process as an example of what we shall have now to describe, as the *external* metabolism of the organism.

Although the yeasts can build up their substance from NH_3 if provided with sufficient quantities of sugar, the required energy being obtained from the splitting up of relatively large quantities of this body, the protoplasm has also the power of breaking down complex albuminoid bodies when placed under different and suit-

the adaptation of the organism to the parasitic stage has made possible this new adaptation. We know that when an organism is growing in a certain medium the metabolism must run in a certain line in correspondence with this, since, as we have seen when organisms are taken from one medium to another, a large proportion may die from being unable to adjust themselves sufficiently rapidly to the new conditions. Now this modification in the metabolism as a whole, which accompanied the adaptation on the conditions present in the animal body, may have been of such a character as to render difficult or impossible a reversion to its original condition, while making possible the formation of a new habit which may replace the parasitic. Such a change in an organism, according to the fixity and difference in character from its line of ancestors, is a step in the direction which would ultimately produce a new variety or even a new species.

¹ *Ann. Chim. Phys.*, 5th series, vol. iii., 1874, p. 81.

² *On Fermentation*, 4th edition, 1886, p. 161.

able conditions. Pasteur, Béchamp, and Schutzenberger have all noted and studied the process of self-digestion of the yeast under conditions in which the organism, deprived of external supplies, was obliged to assimilate its own substance.¹ If yeast is grown in a known quantity of sugar, and the CO_2 given off is collected so that we may calculate when all the sugar has been decomposed, we find that at a certain period the sugar has all disappeared. The process of CO_2 formation, however, still continues, more CO_2 and $\text{C}_2\text{H}_5\text{O}$ being produced than can be accounted for from the decomposition of the sugar; at the same time a series of nitrogenous bodies,—leucine, tyrosine, sarcine, zanthine, guanine, and carnine,—and, above all, certain gummy matters (carbohydrates), from which the alcohol and carbonic acid are probably produced, making their appearance. It is a point of no little interest, that when the organism is forced to undergo this process of self-destruction, which Foster describes as the normal course of the metabolism, we should have its characteristic fermentation product present. This appears to us to indicate that the organism, instead of constantly breaking down its own substance,—which would then require to be as constantly rebuilt up,—develops to a high degree one of the stairs in the downward process, to continue the metaphor, and by breaking down in a much less perfect way large quantities of the medium in which it is growing, obtains more readily the energy it requires. Thus yeast breaks down sugar into alcohol; *mycoderma aceti* converts this into acetic acid, and still another organism may be required to oxidize this to CO_2 and H_2O . We have, then, two phases in the activity of an organism—one, when, under favourable conditions, it exercises its characteristic dissociating power on its medium and produces its special products. This we may term its *external metabolism*, as the substances formed need in no way have become a part of the protoplasm; another, when, from unfavourable external conditions, the protoplasm begins to react on its own substance, giving rise to what we may term *internal metabolism*.² This theory of internal metabolism in its true sense will enable us to advance a feasible explanation of the degenerations of tissues. Wherever there is increased stimulation without a corresponding increase in the supply of nutrition, or, what comes to the same thing, a cutting off of the ordinary food supply, with continuing

¹ These experiments are, unfortunately, somewhat open to criticism, as the inaccuracies resulting from the entrance of external impurities were not always rigidly excluded; the conclusions drawn appear to us, however, to be substantially correct.

² Internal metabolism also seems to stand in direct relation to the process of spore formation, as this makes its appearance when the medium has become exhausted, or bye-products have accumulated to such an extent that they interfere with the external metabolism. Whether the reproductive act is to be regarded as merely the last stage in the normal process of involution, or whether, as appears to us most probable, the products formed during the internal metabolism act as direct stimuli to the process, must at present be left undecided. See also Woodhead on "The Etiology of Tumours," *Ed. Med. Journ.*, July 1888.

normal stimulation, there is a diminution of the external metabolism and a necessity for the protoplasm to react upon its own substance—internal metabolism.

Anything that can interfere with the external metabolism, such as continued high temperature, poisons such as phosphorus, or even diminished vitality in the cells themselves, such as is met with in old age, may set in action this process. It is a well-known fact that, in the breaking down of albumen, the major part passes into the form of fat at some stage of the process, so that its appearance in degenerative changes may indicate the nature of the process that is at work. Thus the physiological occurrence of fat in the cells of the liver after a meal, which results from the splitting up of proteids as the result of *external metabolism*, has a very different significance from true fatty degeneration, which results from the breaking down of the protoplasm itself—*internal metabolism*.

This distinction is not merely of theoretical interest; it also throws light on certain facts which are constantly cropping up in connexion with biological work, and which are otherwise very difficult to explain. Thus pathogenic organisms when grown on bouillon containing peptone produce only minimal quantities of their toxine, and this only after the lapse of a period of time out of all proportion to that which is required in the animal body. In such a medium, to obtain sufficient poison to kill an animal, it is often necessary to wait several weeks or even months. For example, Gamaleia prepares the toxine for his vaccination against cholera as follows:—The medium is inoculated with the microbe, and the next day the fluid is agitated so that the scum, consisting of the organisms which have formed on the surface, fall to the bottom of the tube, and each day this process is repeated. After two weeks the superficial fluid is decanted, and the sediment, consisting of the organisms, is sterilized for twenty minutes at 120° C. This liquid, if now injected, in quantities varying from 4 to 8 cc., into guinea-pigs, kills them; but if it has been allowed to stand for two weeks at the temperature of the laboratory, its toxicity is doubled or even trebled. Growing in a guinea-pig the cholera bacillus forms sufficient poison to kill the animal in as many hours as in our laboratory experiments days are required. This is to be attributed to the fact that the microbe, in the small intestine, produces its toxins by splitting the albumen there present as an inflammatory exudation resulting from the irritation of the toxins already produced. Hueppe and one of the present writers have shown that if the cholera organism is grown on unchanged serum albumen under appropriate conditions, it produces its poison at a rate comparable to that which occurs in the process of natural infection. In Gamaleia's experiments (and in all those of a similar nature) the toxins which make their appearance so tardily are produced, not from the external metabolism, but from the internal metabolism of the organism. The microbes in his experiments fall to the

bottom of the vessel, and from the conditions there present, (especially the want of oxygen), were compelled to react on the albumen of their own substance, so producing the toxins which are usually to be regarded as dissociation products of the albumen. The toxin would here, however, in great part, remain in the substance of the microbe, and would only slowly diffuse out into the surrounding fluid, which, consequently, would only slowly increase in virulence. The physiological effect of a poison depends on the quantity which comes into action at one time, and the effect of a fluid in which the toxin is slowly set free only as the organisms undergo disintegration will be much less virulent, although its action will extend over a longer period. We must, accordingly, ascribe the rapid production of toxins by a microbe in the living animal to the fact that it here exercises its full power of external metabolism. The slower production of the same substances under the unfavourable conditions present in our laboratory experiments, on the other hand, being the result of the internal metabolism of the protoplasm of the microbe. Space will not now permit of our showing the general applicability of this view as explaining many otherwise anomalous results, but we may refer to the experiments of Charrin¹ with the blue pus organism, which run precisely parallel to those of Gamaleia, and are capable of the same explanation.

This specific power of dissociating a given medium in a peculiar way, which is probably one of the later acquirements of the organism, is exerted in its highest degree only under certain special conditions—conditions which vary in the case of each organism that we consider. It was very early observed by Pasteur that the rapidity of the alcoholic fermentation depended on the quantity and nature of the mineral salts present in the fermenting medium. It has since then been noted that unfavourable temperatures, chemical agents, and even the absence or presence of air, according to circumstances, not only affect the amount of alcohol produced, but also increase relatively the amount of glycerine, succinic acid, and other bye-products. Warrington² observed that his pure cultures of the lactic acid ferment did not, in sterilized milk, produce the same degree of acidity as he observed in milk which had spontaneously undergone this change. Scholl³ has also investigated this point, and has come to the conclusion that this is owing to the serum albumen of the milk, which, in its natural state serves as specially suitable nutriment for the microbe, having coagulated during the process of sterilization; and he has shown in a series of experiments that the amount and rapidity of formation of the acid depend on the quantity and quality of the nitrogenous pabulum

¹ *La Maladie Pyocynique*, 1889.

² *Chemical Soc. Jour.*, 1888.

³ *Fortsch. d. Med.*, No. 2, Jan. 15, 1890.

supplied to the microbe.¹ The lactic acid bacteria are, he says, adapted to a certain concentration of sugar, casein, and serum albumen, which is normally present in milk, and that only under such concentration do we find the highest degree of activity of the organism. This fact, that we get the characteristic action of a cell in its highest degree, whether the organism be chromogenic, fermentative, or pathogenic in its nature, only under certain definite conditions, is one with which every worker in a bacteriological laboratory becomes very early acquainted, but one which cannot be too strongly insisted on as one of fundamental importance in its relation to the changes in action and function which the collection of cells which make up an animal may exhibit. We have already seen that the characteristic property of an organism may be more or less permanently affected by culture conditions, and we may now briefly refer to a similar more rapid loss of function which they undergo when exposed to certain devitalizing conditions, such as too high a temperature or the action of certain antiseptic substances. The change here may be regarded as consisting in the loss of more newly acquired properties, the protoplasm reverting more or less to that ideal type of metabolism sketched by Foster, where it is constantly undergoing a process of building up and breaking down of its integral substance.

Let us now apply some of the principles of cell physiology to which we have been conducted by our study of the lower organisms to that collection of cells which makes up one of the higher animals. Preliminary to this, however, we may indicate briefly the process of differentiation, structural and physiological, which these cells have undergone.

In the simplest form in which we have manifestation of life all the functions are summed up in a single cell, and we have a mass of protoplasm in which the primary process of digestion is inherent in the protoplasm, the food being taken directly into the substance of the organism before it undergoes absorption; this protoplasm is irritable, contractile, and is surrounded by a more or less distinct bounding membrane, which serves as a support and protection. In a highly developed animal all these functions become delegated to special cells, or collections of cells, which are termed organs; the process of digestion no longer proceeds inside the protoplasm, but certain cells are set apart to produce the different enzymes or soluble ferments by means of which the food undergoes its preparatory changes practically outside the animal body; the simple irritability of the protoplasm has become developed into a complex nervous system; contractility is represented in striped and

¹ Scholl in his own experiments shows that the presence of peptone appeared to specially favour the formation of lactic acid, and it seems to us more probable that the peptone produced by the other organisms present in milk exposed under natural conditions may account for the larger amount of acidity there observed.

non-striped muscle fibre; and the cell wall manifests itself directly and distinctly in cartilage matrix, which consists essentially in a fusion of a series of cell walls into a homogeneous mass, and less directly but not less really in bone, and the epidermis and its appendages, which serve as supporting and protecting structures. But these structural and functional differentiations in the offices of the cells are probably also accompanied by specialization in the *chemismus* by which they obtain their energy. We have already seen that in the process of putrefaction in albumen many organisms take part, each having become adapted to a special stage of the process. The same would appear to be the case in the animal body, the different stages in the splitting up and oxidations of albumen to urea and carbonic acid being brought about by the different cells and organs to which each process is delegated. A certain amount of the food, and it would appear also of the oxygen, is, however, stored up as reserve material, and we have here again occasion to note the process of specialization as exhibited in the fact that this work is apportioned to different collections of cells. Thus the carbohydrates are retained in the form of glycogen chiefly in the hepatic cells, the fats occur in special connective tissue organs distributed throughout the body, while the albumen is found chiefly in the muscles and nervous tissues. But these reserve materials stored up in the different organs are not drawn upon alike in conditions of starvation, since in virtue of a species of selective action certain sources are first used up before others are attacked. During starvation the fatty tissues appear first most of all to suffer, then the liver and spleen, and last of all the muscles. But the fat distributed throughout the body does not suffer equally,—in those regions, for example, where mobility is most important, as the heart and orbit, it still remains even in cases of extreme emaciation. In a similar way the various groups of muscles are very differently affected, the loss in important organs, such as the heart, being very trifling during starvation in comparison with that of other muscles.

(To be concluded.)

VII.—DR JOHN BROWN: HIS LIFE AND WORK; WITH NARRATIVE SKETCHES OF JAMES SYME IN THE OLD MINTO HOUSE HOSPITAL AND DISPENSARY DAYS; BEING THE HARVEIAN SOCIETY FESTIVAL ORATION, DELIVERED 11TH APRIL 1890.

By ALEXANDER PEDDIE, M.D., F.R.C.P. Ed.

GENTLEMEN,—In occupying the honoured position of President on this the 108th Anniversary of your Society, I have felt considerable difficulty in the choice of a subject for the customary address; for it has seemed to me scarcely possible to dress up in a new garb the well-chronicled facts connected with the life of the immortal Harvey, his great discovery

of the circulation of the blood, or the times in which he lived. Besides, in casting my thoughts over the wide fields of medical science and art, I have felt incapable—and I think at my time of life you could scarcely expect I should be able—to contribute anything new in the way of scientific research. I have therefore chosen to address you on the lines of professional reminiscence and biography, which I know have on several former festive occasions been most acceptable ; and I now propose to do so under the above title.

The following narrative sketches will of course be chiefly confined to the 23 years—from 1829 to 1852—during which Minto House existed, first as a public Surgical Hospital and Dispensary, and afterwards as a private *Maison de Santé* and a public Dispensary. But in order to delineate the more striking characteristics of the popular writer and “beloved Physician,” and of the distinguished Surgeon and Teacher, I cannot altogether avoid throwing a little of the light of earlier and later days—especially those of Dr Brown—on the page of narrative and descriptive biography. I trust, however, in doing this I may not be considered too much of a hero-worshipper, or the time at my disposal to-night unprofitably spent in bringing back from the past fragmentary notices of the life and work of these two uniquely distinguished men, whose personalities are worthy to be preserved from the modifying course of time. Besides, many Harveians now present were only boys at school when Syme died in 1870; a larger number were unborn at the end of his first decade as Professor of Clinical Surgery in our University in 1843; and only one, Sir Douglas MacLagan, besides myself, is here who knew him, or John Brown, or anything of Minto House Surgical Hospital in its early days. I trust, therefore, that what I say on this occasion may not be without interest; and that although my own life and work was so much interwoven with that of my revered master, and my nearly entire life-long friend, and the Institution which kept us so many years in close connexion, I shall strictly exclude, as far as possible, that which is personal to myself, while I endeavour to avoid the garrulousness so often the failing, but which has also been said to be “the privilege of seniority.”

For fuller information regarding Mr Syme than I can give within the compass of this address, I must refer you to the memoir¹ by the late Dr Robert Paterson of Leith, to whom I communicated all the particulars regarding Minto House Hospital; and I may also refer you to an excellent obituary notice in the *Edinburgh Medical Journal* of August 1870, by our esteemed Harveian Dr Joseph Bell.

John Brown was born on the 22nd September 1810, of highly distinguished intellectual and spiritual lineage. His father, the

¹ Edmonstone & Douglas, Edin. 1884.

Rev. John Brown, was then minister of the Secession Church in Biggar, afterwards of the church in Rose Street, Edinburgh, and latterly of Broughton Place. He received the title of D.D. in 1830 from Jefferson College, Pennsylvania ; was the Professor of Practical and Exegetical Theology in the United Presbyterian Church ; the author of various works of high repute for biblical learning, critical acumen, and evangelical teaching ; and was a preacher of great power and popularity. John's grandfather, again, was the Rev. John Brown of Whitburn, a devout and popular minister and author in the same denomination—in which also were his three grand-uncles, the Rev. Ebenezer Brown of Inverkeithing, the Rev. Dr Thomas Brown of Dalkeith, and the Rev. Dr William Brown, long secretary of the Scottish Missionary Society, all men of piety, mental capacity, and diversified distinctiveness. John's great-grandfather, again, was the celebrated Rev. John Brown of Haddington, the author of *The Self-interpreting Bible*, of whom the story is told of his having—while a herd laddie—taught himself Greek, and walked over-night 24 miles to a bookseller's shop in St Andrews in order to buy a Greek Testament to enable him to read the sacred volume in the original tongue. The master of the shop, surprised at the request from such a youth, informed some Professors who came into the shop shortly afterwards of these remarkable circumstances. One of the party got the sacred volume from a shelf, and looking out a passage, said, "Boy read this, and you shall have it for nothing." It was accordingly won, to the astonishment and admiration of those present ; and our Dr John has told us,¹ that "that Testament has come into my possession, and is highly prized as a memento of the heroic old man of Haddington, for whom my father had a peculiar reverence,—as, indeed, we all have. He was our king, the founder of our dynasty ; we dated from him ; and he was 'hedged' accordingly by a certain sacredness or divinity ;" and "that this little, worn, old book was regarded by my father, and is by myself, the sword of the Spirit, which our ancestor so nobly won, and wore, and warred with."

John was over six years old when his gentle and saintly mother died ; but while thus early deprived of her tender care, his father's love seemed drawn out to him in greater tenderness and solicitude as his companion, instructor, and guide. They slept together in his father's study—a small room ; and as John has pathetically written, "I remember often awaking far on in the night or morning, and seeing that keen, beautiful, intense face bending over those Rosenmüllers, Ernestis, Storrs, and Kuinoels—the fire out, and the gray dawn peering through the window ; and when he heard me move he would speak to me in the foolish words of endearment my mother was wont to use,

¹ *Horæ Subsecivæ* ed. 1882, vol. i., "Letter to J. Cairns, D.D.," pp. 66, 67.

and come to bed, and take me, warm as I was, into his cold bosom. *Vitringa in Jesaiam* I especially remember, a noble folio. Even then, with that eagerness to communicate what he himself found, he would try to make me, small man as I was, 'apprehend' (a favourite expression of his father's), what he and Vitringa between them had made out of the fifty-third chapter of his favourite prophet, the princely Isaiah."¹

Born of such blood, and cradled and brought up in an intellectual and spiritual atmosphere, there is no wonder that in John's future life an expansion of mental powers, and a growth of the Spirit, should undergo progressive development. His desire for knowledge was early shown. When in his fiftieth year he has said, "When a boy, and visiting at a country mansion, that fortnight is still to me like the memory of some happy dream; the old library, the big chair in which I huddled myself up for hours with the New Arabian Nights, and all the old-fashioned and unforgotten books I found there."²

My acquaintance with John Brown began when we were of like age in 1822, on the occasion of his father's translation to the congregation of Rose Street, Edinburgh, and when my father assisted at the "Induction" ceremony. We sat together on the pulpit stairs—by special permission as the ministers' sons—the church being crowded to excess; and I felt drawn to him more than to any youth I had ever met, impressed by his looks of sweetness, intelligence, and earnestness, and the keen interest he showed in the proceedings; and from the fact, likewise, that there was a book under his arm, I thought he must be an awfully studious and clever fellow. On further intimacy I soon discovered indications of those characteristic traits of mind and disposition which distinguished him in after life: gentleness and geniality, quickness of observation, a lover of books, an excellent scholar, and having a lively appreciation of the beautiful in nature and art, and of everything in the smallest degree odd or humorous. In the "letter" already quoted, he has told us that his first tasting the flavour of a joke—and "of a word being made to carry a double meaning—and all the lighter of it"—was on hearing that a big perspiring countryman one day rushed into the Black Bull coach office at Biggar, shouting, "are yir insides a' oot?"³

John was unquestionably more "auld farrant" than the generality of boys, but by no means soft or spiritless. In that inimitable description of a dog fight in the introduction of *Rab and his Friends*, and especially in that part which tells of his liberating with a "gully" knife the head of Rab from a humiliating muzzle, and so enabling that hero 'to do' in a twinkling for the game chicken; if that part of the story of Rab is true, he evinced the

¹ *Horæ Subsecivæ*, ed. 1882, vol. i., pp. 14, 15.

² *Ibid.*, p. 52.

³ *Ibid.*, p. 93.

genuine pluck of the most spirited youth ; or if fiction, that in his spirit he had the desire to act thus. However, I do not think John ever engaged in the ordinary games and sports of boys, which in those times were football, shinty, hounds and hares, or the sham fights suggested by the classical readings of the Roman wars, or by the recent excitements connected with the Peninsular Campaign. Besides, I never heard of his playing a round of golf, which was a favourite game on Bruntsfield Links in those days before its surroundings became populous ; or firing a shot, or even angling, although brought up in a district so favourable for the pursuit of the "gentle art," as were the beautiful upper reaches of the Clyde and Tweed, with their many lovely tributary streams and burns. Indeed, I remember him in later years saying, that on one occasion he "tried to fish, and caught everything,—but fish !" He was, however, like his father, a bold and excellent horseman.

John was tutored entirely by his father before coming to Edinburgh in 1822 ; he was then placed for some time under a teacher of the name of Steele ; afterwards transferred to the Rector's class of the High School under Dr Carson, and proved himself an excellent scholar, especially in Greek, the taste for which was kept up to the latest day of his life ; and latterly he completed his classical and literary education in attending classes in the University.

In May 1827, at the age of 17, by the encouragement of the Rev. John Belfrage, M.D., of Slateford, he now entered on the study of Medicine, and at once began an apprenticeship with Mr Syme. Lapse of time probably may have to some extent obliterated the name of Belfrage from the denomination with which he was connected, or even the sphere in which he laboured ; but a few, as I do, may still remember him, or may have heard of him not only as an able and devoted Seceder minister, but also as a wise, energetic, and successful amateur physician among his own people, in the then rural village and district of Slateford ; and who was not unfrequently asked to consult with Dr Abercrombie and other physicians in Edinburgh in critical cases. Dr Abercrombie has been styled by John Brown our "Scottish Sydenham ;" and his panegyric on Dr Belfrage deserves also to be quoted. He has said, "Belfrage was a great man *in posse* ; if ever I saw one, 'a village Hampden.' Greatness was of his essence ; nothing paltry, nothing secondary, nothing untrue. Large in body, large and handsome in face, lofty in manners to his equals or superiors, homely, familiar, cordial with the young and the poor, I never met with a more truly royal nature, more native and endued to rule, guide, and benefit mankind. He was for ever scheming for the benefit of others, and chiefly in the way of helping them to help themselves."¹

¹ *Horæ Subsecivæ*, ed. 1882, vol. i. p. 77.

John was accordingly apprenticed to Syme, then prophetically looked on by Dr Belfrage as the rising star of Surgery in Scotland. Syme was in his twenty-eighth year, while John was his third apprentice ; and forty-five years afterwards, this grateful tribute was paid to his master's memory, whom he may be said to have almost worshipped,—“ Perhaps I was too near Mr Syme to see and measure him accurately, but he remains in my mind as one of the best and ablest and beneficent of men. He was my master ; my apprentice fee bought him his first carriage—a gig, and I got the first ride in it—and he was my friend. He was, I believe, the greatest surgeon Scotland ever produced ; and I cannot conceive a greater, hardly of as great a clinical teacher.¹

John was indentured after Syme had given up his anatomical class, and was now teaching surgery in the Extra-Mural School, and struggling to obtain a footing in surgical practice. Soon thereafter, May 1829, Minto House Surgical Hospital and Dispensary was founded by Syme. This was done by his taking a long lease of a fine old mansion in Argyle Square originally built by the Minto family, but which some years since was swept away along with the Square and other historically old buildings in the formation of that now noble thoroughfare, Chambers Street, in which, near the site of the Hospital, the Medical School has been built to which the name of Minto House is applied.

The circumstance which led to this bold adventure of Syme's in opening a public Hospital with 24 beds, was the strong opposition which he encountered from certain surgeons and their friends to prevent him obtaining an appointment on the surgical staff of the Royal Infirmary. Advised and encouraged chiefly by the two worthies, Belfrage and Abercrombie, and believing thoroughly in his own strength in course of time to storm the surgical citadel by rivalry in good works, or at any rate to obtain at an early period a high position in surgical fame, he estimated that the probable cost of maintaining such an institution would, to a large extent, be met by board in the Hospital of a Resident Surgeon or pupil, the fees of a limited number of pupils for clinical instruction, and help from the public in donations and subscriptions ; while a large private income might be expected from apprentice fees and a systematic course of surgery. In those calculations he was not disappointed ; for instead of wrecking his professional progress and prospects, the spirited action in founding and carrying on this unique Institution, his notable surgical achievements, and his lucid clinical and systematic teaching and publications, speedily gained for him the favour of the public and the profession. The twenty-four beds of the Hospital were constantly occupied with most interesting and important cases of surgical disease ;

¹ *Hours Subseque*, “ Mr Syme,” vol. ii., 1872, p. 392.

the Dispensary waiting-room and outdoor attendance was held in much request; the clinical roll of pupils, to the limited number of forty, was always complete; the systematic surgical class-room, accommodating upwards of 250, was crowded; the number of those apprenticed to him at a high fee was quite unprecedented in the surgical annals of our city; and, finally, in less than five years Syme was Professor of Clinical Surgery in the University, and obtained in virtue of that office the Clinical Surgery Wards in the Royal Infirmary.

It was on the 15th November 1830 that by the advice also of Drs Belfrage and Abercrombie,—the one a family friend, and the other our family doctor,—that I became an apprentice of Mr Syme, eighteen months after the establishment of the Hospital. I was then the 13th on the roll of apprentices; the Institution was in its full swing of active, attractive, and highly beneficial work; and its fame and popularity great not merely in the city, but throughout the length and breadth of the land, notwithstanding the rivalry of the Royal Infirmary and surgical lecturers, so powerful as were Liston, Lizars, and several others.

John Brown I found had, from the beginning of the Institution, done much good work in the different departments of dispenser, dresser, clerk, and assistant, as well as formerly in connexion with Syme's surgical class and practice, and was a great favourite of his master,—indeed, was more a companion than a pupil. He was also notably popular with the fellow-apprentices, nurses, and patients, which regard and admiration arose from his general intelligence, insight of character, relish for anything humorous, his quaint remarks, ready anecdotes, gentle manners, and the possession of that singularly sweet and sympathetic countenance which he retained to the end of his days.

On entering the little consulting room of Minto House, where were assembled Mr Syme and nine of his apprentices—all strangers to me except John Brown—his presence and countenance was cheering. It is sad to reflect that of that young and hopeful group, with the exception of Dr Edward Ferrand Astley of Dover,¹ all are now no more; and here I may add, that of the thirty-two apprentices Mr Syme had between the years 1827 and 1837, only two, so far as I know, besides myself still survive—and both of these joined in 1837.

In regard to the apprenticeship system which existed at this time, but which came to a close soon after 1837, I may here remark, that it had great advantages when under masters who held office in any hospital, dispensary, or large institution, and when studies and habits were properly supervised; but under other circumstances that bond was a waste of time, and

¹ Dr Astley since 1836 has occupied an excellent position in Dover, and founded an hospital there for cases of infectious disease.

the result in many instances unfavourable, even disastrous. In the early course of the student's life under such masters as Abercrombie, the Bells, Liston, Lizars, Syme, and others, there was less theoretical teaching, less done by cramming, and more by private practical instruction and impressions photographed, as it were, on the brain from sight and touch. The study was thus made more fascinating from its commencement, by gradual child-like opening up of a road through the gates of the senses to higher knowledge; and so by quickening the power of observation, a desire was created for further insight of the mysteries of life, health, and disease. The tendency of such influences and experiences on passing the successive milestones of medical study was to intensify interest in the wonderful developments and adaptations of its science and art: and so it was in these early times at Minto House. Mr Syme being a first-rate botanist, chemist, anatomist, physiologist, and pathologist, as well as a skilful surgeon, met and talked with us apprentices in the large garret room, the museum of the Hospital, and turned to most excellent account in demonstrations, the excellent anatomical, pathological, and surgical preparations, models, and plates which he possessed. Besides, we had the advantage of dissecting parts removed at operations; conducting autopsies; and occasionally performing surgical operations on the bodies of those who died in the Hospital before removal for burial. Thus in the ordinary work and routine of the Hospital and the Dispensary very great advantages were enjoyed: in the Laboratory, excellent pharmaceutical and dispensing practice: in the Hospital, invaluable experience as dressers, clerks, and assistants at operations: in the indoor work of the Dispensary, extensive direct, personal experience from contact with an infinite variety of medical as well as surgical disease, even in the performance of the minor operations of surgery; and at patients' own homes, that sort of experience which is not obtained in an Hospital, but of essential importance to the young doctor who at once enters into general family practice; and in all this too, there was the advantage of ready consultation with one or other of the senior apprentices, or with the chief himself. Thus what was also instilled by Syme's clinical and systematic lectures, and by reference to text-books as cases and difficulties occurred, an amount of knowledge and experience was obtained, which, properly assimilated, tended to produce greater fitness for entering on general practice than any amount of cramming in the early years of study from books or lectures could accomplish. Now of course an apprenticeship system is incompatible with the enormous boundaries of medical science and the present arrangements of our educational institutions. No doubt the gradual development of sound clinical teaching in the hospital—the introduction of which in Scotland was

greatly due to Mr Syme ; the institution of practical classes in almost all the departments of medical education ; and, latterly, laboratories for scientific research, have greatly met the remarkable evolutionary requirements of medical science and art ; yet I must say I think there is something of what was enjoyed in these old days awaiting in the present education of our M.B.'s, C.M.'s, and Licentiates, to fit the greater number for entering on the responsible duties of public and private practice. I do not advocate a return to apprenticeship alliances, but I think there should be one year at least, out of a five years' course of study, entirely devoted to clinical work in an hospital, or engaged in a pupilship under a qualified practitioner, or in connexion with a carefully officered public dispensary, or say in an out-door dispensary system grafted on the waiting-room attendance of a public hospital, before a student is launched on the world as if he were a thoroughly qualified doctor. The earlier, too, he has some practical experience, especially in surgical disease, the better.

I may here mention that at this Minto House period the teaching in our University, with two or three exceptions, was uninteresting and unsatisfactory compared with that in later times, either in respect of the matter or style of the lectures, or in the division of the subjects taught. It could scarcely be otherwise when, for example, Dr Monro's course was announced as comprehending besides anatomy, the most important subjects of physiology, pathology, and the principles and practice of surgery ! At that time there was much more attractiveness and efficiency in the Extra-Mural School when Knox, Liston, Lizars, Mackintosh, Argyle-Robertson, Syme, Sharpey, and others, occupied the ground. It was to the credit of Syme in 1840, when an University Professor, that he pleaded in the Senatus, and stood alone for a number of years, for the recognition of Extra-Mural lectures as part of the Medical curriculum, so as to stimulate in the University greater life and vigour.

In the daily muster of apprentices in the Minto House consulting-room before or after the Hospital visit or lecture, I may notice that Mr Syme, though at times moody, was in general lively, familiar, and in sympathy with us. Here we gave in our reports since the previous day, noticing any accident or interesting cases admitted or applying for admission ; any amusing or exciting occurrence in the Hospital, or outside in the Dispensary practice, which was large ; and frequently, as may be believed, there was no small amount of gossip or criticism indulged in, concerning what was said or done at the Infirmary by Liston, Lizars, and their partisans, for rival feelings were strong at that time, and keenly participated in by the enthusiastic apprentices, pupils, and friends of both parties.

The description of Syme long afterwards by Dr Brown

meeting his house-surgeons, clerks, and dressers in the small consulting-room of the Royal Infirmary (which doubtless several here will remember), is a felicitous reproduction of what took place years before at Minto House with his assembled apprentices. "How delightful Syme was standing with his back to the fire, making wise jokes—*jacula prudentis*—now abating a precocious youth, now 'heartening' (encouraging) a shy, homely one, himself *haud ignarus*; giving his old stories of Dr Gregory and Dr Barclay. How the latter—who had been a 'sticket minister,' was a capital teacher of anatomy and good sense, used to say to his students,—Gentlemen! Vesalius and his fellows were the reapers in the great field of anatomy, John Hunter and his brethren were the gleaners,—and we,—gentlemen!—are the stubble geese!"¹

John Brown was acting as clerk in Minto House at the time I joined; and it was immediately after then the incident occurred which is so graphically and touchingly narrated by himself in that world-renowned story of "*Rab and his Friends*." Here I may say in answer to the oft put question, as to the fact or fiction of this most pathetic and artistic story, that Dr Brown himself has settled it in the introduction to his kindly and philosophic paper, "Locke and Sydenham," by saying, "that it is in all essentials strictly matter of fact." The story was not written, or at least not published, until 1858, twenty-eight years after the incidents occurred; and from examination of the books of the Hospital, and evidence elicited recently in correspondence, I have found the date of the occurrence to be December instead of October 1830; and the real names of the beautiful, sweet, and suffering "Ailie," and of her practical, laconic, but true and tender-hearted husband, "James Noble," and of the country town "Howgate," of which he was said to be the carrier, are assumed for very obvious reasons.² The singularly simple construction, the vivid narrative, and exquisite pathos of "*Rab and his Friends*" have touched many a heart and drawn many a tear. Had Dr Brown written nothing else than this beautiful idyll, his name would have been immortalized by it. It is unquestionably the masterpiece of his numerous papers, meritorious as all of them are. It has gone through many editions in this country and in America, and several translations abroad.

But to return to the narrative of Mr Syme at Minto House Surgical Hospital, perhaps one, or at most two now present may

¹ *Hora Subseiva*, "Mr Syme," vol. ii. p. 402.

² In tracing out the particulars of the incidents connected with this story a very striking example of the heredity of cancer has come to my knowledge; for besides in the case of Ailie herself, that disease occurred in her daughter, in three sons, in her grand-daughter, a nephew, and two sisters, in all 9 cases. At this distance of time I have had no means of ascertaining what may have been the family history in Ailie's forebears.

remember him in the class-room of the Hospital, delivering a clinical or systematic surgery lecture. When not demonstrating at the table, it may be remembered how he sat at the side of the stove,—as sketched by myself in 1833 (sketch shown),¹—with the left hand in his trousers pocket, while the right was generally applied to the corresponding thigh, which he smoothed or gently rubbed from time to time. He was of short stature and slim, although in his latter days stout in figure ; his dress most unbecoming, but that of the period—namely, a black, long-tailed coat, with stiff high collar, dark gray or black trousers, and a black and white checked neckcloth. His head was large and finely shaped, nose longish, eyes dark gray, large and penetrating, upper lip full and round, mouth firm—the least pleasing of his features, chin retreating, neck short, and hands and feet beautifully formed and strong. His utterance was at times slightly stuttering, and his voice somewhat muffled ; but his delivery was so serious and emphatic, his style so clear, concise, and vigorous, and his exposition so distinguished by accurate description and diagnosis, practical common-sense observation, and consistence with physiological and pathological fact, that he was invariably listened to with close attention and interest. His personal appearance changed considerably during advancing years, while his excellent qualities as a clinical lecturer will, I am sure, be attested by those present who were in the profession anterior to 1870, when he was removed from our midst. He was not a brilliant operator like Liston, or Ferguson, or James Duncan ; but neat, cautious, sufficiently bold and rapid, while safe from the thorough knowledge he had of anatomy. His hand too, which was remarkably fine in symmetry, was strong and steady ; and his self-possession and resource were always equal to a difficulty or the unexpected. As he was short in stature so was he laconic in speech ; his publications were conspicuous for conciseness of expression ; in consultation he was brief from accuracy of *tactus*, quickness of diagnosis, rapid perception of the important features of a case, and the honesty and common-sense of his conclusions ; and his prescriptions were also short and simple in the extreme. In correspondence too, his rule was to write wide on either of two sizes of note-paper, according to the importance of the matter in hand, and never to turn the page unless there was some very special requirement to do so. Indeed, he was a man of brevity all round ; and as some one truly said—I think it was John Brown—“ He never unnecessarily wasted a word, a drop of ink, or of blood ! ” By some also he was considered short in temper—nay, he has been spoken of as irritable, quarrelsome, and cold-hearted ; but those who said this could not have known him intimately. That he

¹ Taken in 1833 in cabinet size, from which this carte was photographed a few years since.

was frequently engaged in medical controversy and strife is undeniable, but these were troublesome times in our profession in Edinburgh,—very different from the present; and if time permitted I could show that in the frays in which he was a combatant he was either standing on the offensive from assaults on himself—the outcome of professional jealousy or cabal,—or that he had the courage “to rush in where angels feared to tread,” in cases of untruthfulness or unprofessional conduct. Those who knew him best esteemed him most. His hospitality was remarkable; and friendships once formed became attachments warm and enduring. Five years apprenticed to him, twenty-two years connected with him in Minto House Hospital, installed soon after graduation as his ordinary family attendant, and these relations extending through a period of forty years without a single hitch or disagreement, I had the best opportunities of estimating the true worth of his character; for thus I saw him in all aspects and circumstances—professional, social, and domestic; in times of joy and sorrow, of sunshine and clouds; amid the fame of surgical achievements, the enjoyment of worldly prosperity, as also in public and private trials; and lastly, when the pleasures and activities and triumphs of life came to a sudden close, and nothing remained but the prospect of the “dark valley” and “the beyond.” Besides, as a surgeon and great operator, he was ever actuated by kind and humane feelings, deeply felt, although not effusively expressed. Often did I witness his sympathy with suffering which he was unable to relieve, and distress in beholding the grief of others, when operative measures failed to preserve the lives of beloved friends. It was, too, a precept constantly impressed by him on pupils, that it was much more creditable to cure a disease by simple means than by operative procedure. In regard also to vivisection, he strongly deprecated it unless some very important point in physiology or pathology was likely to be ascertained thereby; and he used to abuse Majendie and other experimentalists of the period for atrocities committed in haphazard objectless research. Medical men and students have been slandered for supposed acts of vivisection, but I never saw anything of the kind done by the apprentices or pupils of Minto House; and only on two occasions during my connexion with Mr Syme did he himself vivisect. These were the occasions—and I assisted him,—when by operating on a dog he established the interesting and important fact of the power of the periosteum to form new osseous substance independently of assistance from the bone itself.

Bold as an operator, and also as a controversialist, I may also add, Syme was a man of no small pluck when circumstances were trying to courage. This I had frequent opportunities of observing; but it was conspicuously evinced in entering on his

duties in the enemies' camp, so to speak, and performing his first operation in the Royal Infirmary, considering the amount and kind of opposition which he had for years encountered. The operation was lithotomy, one in which for expedition and dexterity, as well as ultimate success, his then antagonist Liston was justly celebrated. The theatre was crowded—many medical men in addition to students and the apprentices of the rival surgeons being present. The first steps of the operation were executed with precision and rapidity, but when extraction was attempted a hitch occurred. The friends of Liston and Lizars laughed, while those of Syme looked stern and downcast, until after a minute or two of calm examination first one stone and then another, up to ten in number, were quickly extracted, amid an audible expression of applause. From that day Syme cut his way into universal favour, and had the largest and most loyal following in the wards of the Hospital.

Here I desire to look back in a cursory way on the five years of Syme's spirited adventure at Minto House Surgical Hospital, and to express my conviction, that that short period was the most distinguished and fruitful in the whole course of his surgical career; and I hesitate not to say it was so great, that had he ceased then to use his pen, to raise his voice, or wield his knife, his name might well have been handed down in lasting remembrance.

It was then that Syme introduced a correct system of clinical surgical instruction, that he published his *Principles of Surgery* (of which, I believe, there have been four editions),¹ a perfect model text-book, unsurpassed at the time, and even yet worthy of consultation, notwithstanding the extraordinary advance in physiological and pathological knowledge; the modifications and improvements in surgical procedure,—so many of which were afterwards introduced by himself; and the novelties in constitutional and local treatment since the introduction of anæsthetics and antiseptics. In it the general principles of inflammation, of health and disease, and the self-regulating power of Nature, are ever kept strongly in view; the leading facts regarding varied surgical affections are scientifically arranged and concisely and clearly stated, unencumbered by much detail, but, like a series of portraits touched off by a master hand, with sufficient colouring to be easily recognised and remembered. It was then, too, that he published Quarterly Reports of the Minto House cases in the *Edinburgh Medical and Surgical Journal*,² which, if reprinted, might be read with benefit even at the present time. It was then, too, that he published his excellent treatise on *Excision of Diseased Joints*,³ that of the elbow having been intro-

¹ MacLachlan & Stewart, Edinburgh, 1831.

² From May 1829 to August 1833.

³ Adam Black, Edinburgh, 1831.

duced in this country by himself, and successfully practised. It was then, also, he was the first in Britain to excise the superior maxillary bone for an osteo-sarcomatous growth, an operation which he successfully repeated several times with the aid of cutting pliers instead of the chisel and gouge ; and also several excisions of the lower jaw. Then, also, he performed many amputations by the flap operation instead of the then usual circular mode, excepting in the case of the leg, in which he introduced a modified form, by lateral semilunar incision of the integuments, reflecting them to the extent necessary for covering the bones. Then in these days he operated in various cases of aneurism, hernia, stone in the bladder, mammary tumours, etc., and treated various fractures and other diseases and injuries, in mostly all of which he made considerable changes on the old methods, and which in the progress of surgery he himself improved on, and others adopted. Then, again, there were some ailments regarding which he originated entirely new views in diagnosis and treatment—such, for example, as in cases of exfoliation from the pelvis, either from the ischium or pubis, which he explained as having had their origin from sudden strain on that point of bone to which the extensor and adductor muscles of the thigh are attached, and which, from the existence of sinuses in the neighbourhood of the hip, were apt to be taken for disease of the hip-joint or lower part of the spine. Now, too, he drew the attention of the profession to the facts then overlooked or neglected in fistula in ano, namely, the nearness of the internal opening to the verge of the anus, and the proper treatment being division of the small septum lying between it and the external opening without respect to the sinus above, however far that might extend, and then only interposing, for one day, a dressing in the cut surface. Then, long before tenotomy was practised for club-foot and other contractions, Syme performed subcutaneous section on the sterno-mastoid muscle most successfully in wry-neck, when there was no complication with spinal curvature. Besides, he had the great credit of introducing the practice of blistering over those otherwise intractable, indolent, or callous ulcers of the leg, in which, from long-continued inflammatory irritation, there resulted a hard, brawny swelling of the limbs—no ordinary œdema,—a thick elevated edge, a smooth ungranulating surface, and a discharge of offensive odour ; but in which, after a night's application of the vesicatory, absorption begins in the edges, detumescence goes on in the surrounding tissues, a healthy granular condition appears in the sore, and cicatrization steadily follows.

But I think I have said enough to show that Syme in the Minto House days was much more than a pioneer in Surgery, while unquestionably he led the way to that which has since been largely adopted in theory and practice. Simplicity char-

acterized all his methods; and the care taken in the healing of wounds after an operation was very great. Complete closure was for a time avoided, so as to permit a free exit to bloody or serous discharge, although drainage-tubes had not then come into use; while gentle support with light bandaging was applied to the surrounding parts to obtain approximation of the deeper surfaces. Abscesses also were treated by free incisions at the most depending part; and the admission of air to exposed cavities carefully guarded against. Besides, Syme was most strict in the observance of cleanliness as regards instruments, sponges, and hands, especially when recently in contact with any sphaculating or erysipelatous surface or inflammatory discharge. In fact, the anxiety shown in such precautions seemed in those non-bacterial days to be a forecast of the presence of the then unseen, and not even yet thoroughly understood, germ enemies; and of that septic action which has been reserved for his distinguished son-in-law, Sir Joseph Lister, to defy and defeat to a large extent in his now universally recognised antiseptic surgery.

(To be continued.)

Part Second.

REVIEWS.

On the Pathology and Treatment of Diseases of the Skin. By J. L. MILTON, Senior Surgeon to St John's Hospital for Diseases of the Skin. Third Edition. London: H. Renshaw: 1890.

WHEN the great opportunities which Mr Milton has undoubtedly enjoyed for the study of cutaneous affections are borne in mind, the book which he has produced—one which, as appears from the title-page, has reached its third edition—should have been a much better piece of work. As it stands it possesses most of the faults of the older productions without the excellences of the later. While the account given of some diseases is fairly good, it would puzzle the most experienced to recognise others from the picture he has drawn. Confusion is further added by considering in one group complaints pathologically distinct, as molluscum contagiosum and molluscum fibrosum; tinea tonsurans, favus, and pityriasis versicolor, and combining under a single head as the eczemata, eczema and ulcers. Many illustrative cases are related, some in tiresome detail, others so cursorily as to be of no practical utility. There is no classification. Mr Milton is not sure that he ever understood a system of classification at all, and indulges in a sneer at each and every one of those by whomsoever drawn up. Placed in this position he has taken Willan's exploded one as a text, and at once plunges into

his subject by a description of the papulæ. Nor is the statement that this treatise deals with the pathology of diseases of the skin fairly borne out by the contents. No doubt many pages are devoted to pathology, but we find in the preface that "great part of the pathology is borrowed, and the whole of the morbid anatomy." There have been men who possessed the faculty of arranging, and, so to speak, focussing the labours of others, although in no sense original observers themselves, and who have thereby conferred immense benefit on the science of medicine, but such is not the case here. No new light has been thrown on any of the vexed questions of dermatology, while the record of what has been done in other fields is in many instances far from complete or satisfactory. Nor can the question of treatment even be regarded as handled happily, though the author's object is said to be the one great one of finding out the best and simplest mode of dealing with disease, and of laying this down with a clearness and precision which should leave nothing open to question, every other consideration being sacrificed. Even when his own peculiar methods are referred to this is not always the case. It is true that for a large number of complaints tincture of iron made in a special manner and De Valangin's solution of arsenic are recommended, while the vapour bath and benzoated zinc ointment are frequently but not exclusively suggested. Yet the treatment employed throughout is not a simple one, and the quantity of stimulant prescribed and of calomel administered seems excessive. Some anomalies in typography have struck us; thus the only nationality which receives the honour of a capital is the Jew,—scotch, english, irish, etc., are printed so. Although much trouble must have been taken in consulting authorities, the general impression, after a pretty careful perusal, is unsatisfactory, and we are therefore unable to express ourselves in terms of praise. The volume is one which is neither calculated to advance dermatology nor to prove of much use to the practitioner, for it is in no sense a student's book.

Lectures on Pathological Anatomy. By SAMUEL WILKS, M.D., F.R.S., and the late WALTER MOXON, M.D., F.R.C.P. Third Edition, by SAMUEL WILKS, M.D., LL.D., F.R.S. London: Longmans, Green, & Co.: 1889.

So many excellent works on pathological anatomy have appeared since the publication of the second edition of this work in 1875, and, indeed, the subject treated of has made such great strides both in accuracy of detail and in the manner of presenting it, that we took up this new edition of an old and familiar friend with considerable misgivings. After looking into it, however, our fears were removed, and we felt that it was a good thing to have at the present time from one who was in the past actively engaged in pathological investigation, but who has of late been more an interested

and capable observer and critic of the advances which have been made. From this standpoint the new edition ought to be welcomed by pathologists and physicians, and the author has done well not to hand its preparation over to another, for its value lies in its authorship, and another name on its title page would have detracted from that.

An Essay on Asphyxia. By GEORGE JOHNSON, M.D., F.R.C.P., F.R.S. London: J. & A. Churchill: 1889.

IN this monograph the author points out the conflicting statements as regards the phenomena of asphyxia, or, as he prefers to call it, apnoea, which are to be met with in the writings of the older as compared with the newer physiologists. Whilst the former, as represented by Todd and Bowman, state that after death from this cause, the right heart is found distended with blood and the left heart nearly empty, the latter, as represented by Burdon Sanderson and Foster, assert that at death both sides are gorged with blood, but that afterwards, owing to rigor mortis, the left side is found to have emptied itself. Dr Johnson, from observations and experiments which he details, concludes, and we think with reason, that the older view is the correct one.

He next considers the cause of the stoppage of the heart in asphyxia. Pointing out that in an animal during asphyxia the mere entrance of air into the lungs will cause the heart which has ceased to beat to resume its contractions, he argues that the main cause of the stoppage is not paralysis of its muscle by venous blood, but simply its great distension caused by contraction of the pulmonary arterioles. The entrance of air into the lungs will cause these vessels to relax, and thus lowering the tension in the right heart will enable it to begin beating, just as it does when its distension is relieved by puncture of its walls and escape of part of its contents. He, lastly, demonstrates how these data apply to the phenomena of cholera, asthma, and other diseases.

As might be expected, this essay is thoroughly philosophical. In it the reader will find a welcome explanation of contradictory statements, and information of great interest in connexion with the interpretation of important pathological phenomena.

A Treatise on Materia Medica, Pharmacology, and Therapeutics. By JOHN V. SHOEMAKER, A.M., M.D., Professor of Materia Medica, Pharmacology, and Therapeutics, in the Medico-Chirurgical College of Philadelphia, etc.; and JOHN AULDE, M.D., Demonstrator of Clinical Medicine, etc., Philadelphia. In two volumes. Vol. I. Philadelphia and London: P. A. Davis: 1889.

WE have before us the first of these two volumes, and if the second volume be equal to the first, we shall have in these two

volumes a most valuable contribution to this important branch of scientific medicine.

The first volume is devoted to Pharmacy, General Pharmacology, and Therapeutics, and remedial agents not classified with drugs.

Professor Shoemaker has long been known on this side of the Atlantic as a distinguished teacher, and his name is also associated with those preparations now so much used, called *oleates*.

The arrangement is excellent, and the book will be found very useful to students and also practitioners.

The second part of this volume is occupied with "remedial agents used in the treatment of disease not properly classified with drugs." This is a valuable contribution to medical science, and includes such subjects as Electro-therapeutics, Oxygen, Hydro-therapeutics, Masso-therapeutics, Heat and Cold, etc.

We can confidently recommend it to the favourable consideration of our readers.

The Retrospect of Medicine. Edited by JAMES BRAITHWAITE, M.D. Lond. Volume 100. July-December 1889. London: Simpkin, Marshall, Hamilton, Kent, & Co., Limited.

THIS Retrospect well deserves the high encomiums that have been passed upon it by the press. The present volume maintains the reputation of its predecessors, and completes a very satisfactory record of a half-century's medical progress.

The Medical Annual and Practitioner's Index, 1890. Eighth year. Bristol: John Wright & Co.

THIS Annual is again enlarged. Among the new features may be mentioned important and lengthy articles on Thermo-therapeutics and Electro-therapeutics, on the Bladder and Cystoscopy, on Cerebro-spinal Surgery, on Heart Diseases, on the Prostate and Urethra, on Sanitary Science and Life Insurance. The staff of contributors is a strong one. Diseases of the skin are under the charge of Dr Allan Jamieson, while Mr Skene Keith deals in a special article with Uterine Electro-therapeutics. The Annual has well established itself, and is one which we should not now like to be without. It has proved itself to be a most valuable aid to the practitioner, both in keeping him abreast with the rapid advances made in many departments of professional work, and in the way of giving very helpful hints in regard to treatment.

Lippincott's Magazine.

THE numbers of this excellent magazine for the first four months of the current year have been sent us for review. A most pleasing variety they make from the usual ponderous tomes and professional

Lancets and the like. But a good, well-printed, light magazine, not morbid and not intense, is an excellent tonic for a convalescent patient, so deserves a word of praise in our pages as much as a new pill or a new pot of extract of beef. Lippincott has one excellent feature. It contains one good, long, readable story in each number, which is complete in itself—none of your leaving off suddenly just as the heroine is bathed in tears, with a “to be continued” in our next. The padding is above the average in merit, and each number has more than one little poetical effusion for those who like such “parlous stuff.”

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXIX.—MEETING V.

Wednesday, 5th February 1890.—Prof. A. R. SIMPSON, *President, in the Chair.*

I. EXHIBITION OF PATIENTS.

1. *Prof. Grainger Stewart* showed a case of PARAMYOCLO Nus MULTIPLEX, and pointed out the main features of the disease. The patient was a girl æt. 13, who had suffered from the disease for about twenty months. Her family history, habits, and previous health were good. The illness began with occasional headaches and gradually increasing pallor. Three months later the characteristic jerking began. They were first noticed in the neck and head, and then extended to the arms and shoulders. On admission to the Infirmary patient was very anæmic, and functional cardiac bruits were audible over the base. The urine was phosphatic. The nervous system was normal, except as regards the motor functions. Voluntary motion was unaffected. At quite irregular intervals there were short, rapid jerks of the head backwards, each being caused by a single muscular contraction. Sometimes two or three jerks followed in rapid succession. There were similar occasional jerks of the flexor muscles of the wrist and forearm and of the muscles about the shoulder. The movements were bilateral, and were apparently unaffected by attention or effort, while the lower limbs and hands were quite free. Prof. Stewart stated that the disease had been first described by Prof. Friedreich of Heidelberg about 8 years ago, and that only a few cases had as yet been recorded. From these it seemed probable that a considerable variety existed, and that, as certain French writers were seeking to show, it might be proper to recognise four types, viz.,—a clonic, a tonic, a tetanic, and a fibrillary form. The

present patient belonged to the clonic type. With regard to treatment, some improvement had taken place under iron tonics. Arsenic had proved of little service. Electricity had been applied as recommended by Gowers—voltaic electricity from the spine to the affected muscles—but still, as the members of the Society had seen, the condition persisted.

2. *Mr Charles W. Cathcart* showed a case of PANCREATIC CYST, (TRAUMATIC) SUCCESSFULLY TREATED BY ABDOMINAL SECTION, a description of which will appear in a future number of this Journal.

3. *Mr A. G. Miller* showed a young man on whom he had performed TREPHINING OF FRONTAL SINUS. Patient first complained of pain at the right side of the root of the nose, eyebrow, and eyeball, and of a discharge from the right nostril, in September 1888. He thought it originated in a cold. Abscess of antrum was suspected, opened in December 1888, and drained through a tooth socket. Pain and discharge still continuing, the frontal sinus was opened November 26th, 1889, when a considerable quantity of foetid pus was discovered. A curved lead tube was retained for about a month. Patient when shown was perfectly well.

4. *Prof. Annandale* showed a patient suffering from a CICATRICAL STRICTURE AT THE LOWER PART OF THE ŒSOPHAGUS, the result of accidentally swallowing strong ammonia, and demonstrated in connexion with his case the introduction of Dr Leyden's Œsophageal retention tubes. Prof. Annandale stated that he had used these tubes in several cases of malignant stricture of the Œsophagus with most beneficial effects as regards the swallowing power. Patients who had been unable to swallow fluids without great difficulty were able after the introduction of one of these tubes to swallow fluids and semi-solid substances with ease. The retention of these tubes for a week or ten days at a time caused no irritation. When removing the tube it was important to pass down the guide and handle to the tube, otherwise spasm was apt to interfere with its ready extraction.

II. EXHIBITION OF INSTRUMENT.

1. *Dr Gulland* said this MICROSCOPE LAMP was first described by Dr W. Kochs in the *Archiv für Mikroskopische Anatomie* for 1888, and was patented by himself and Max Wolz in Bonn, the maker of the lamp. It consists of a small paraffin lamp which can be raised and lowered on a metal stand, and round the glass chimney of which is a long cone of japanned tin, with its upper end so bent as to carry the heat of the lamp away from the observer. Round the flame the inner surface is nickel plated, in order to throw all the light on the aperture, into which is fitted a solid rod of very pure glass, so bent that the end furthest from the lamp is brought

up under the stage of the microscope, and illuminates the microscopical object with a flood of perfectly cool light transmitted by total reflexion along the rod. The illumination is so intense as to render a condenser unnecessary even with very high powers, but this brilliancy can be lessened by lowering the lamp, or by using the diaphragm, while the yellowness of the light can be corrected by placing a small disc of pale blue glass on the end of the rod under the stage. The rod can, of course, be made to illuminate the object obliquely, or be inverted in the aperture to throw light down upon an opaque object, and, used in a somewhat similar way, it might be made very useful clinically to illuminate cavities into which it is difficult to throw light by a mirror.

III. EXHIBITION OF PATHOLOGICAL SPECIMENS.

Dr Grainger Stewart stated that the patient from whom the specimens had been removed had been under treatment in his wards from about Christmas. On admission the patient gave a history which pointed to the probability of abscess of the liver having penetrated the diaphragm and been discharged through the lung, and a large quantity of pus was being daily expectorated. The first burst of pus had been preceded for some time by cough and other tokens of irritation. The expectoration gradually diminished, and ultimately ceased, and the patient was dismissed much improved in general health. A few days later he returned, complaining of some weakness in the right hand and arm, also in the right leg, and from his general condition, taken along with the local symptoms, it was feared that pyæmia had been established, and secondary abscesses formed in the brain, one in a position fitted to produce the paralysis. The course of the temperature did not, however, confirm the suspicion of pyæmia, and, as the paralysis diminished and ultimately quite passed off, the head symptoms seemed to be less important. He was kept under observation; continued extremely weak, and was taken with hæmatemesis, from which he died. At the autopsy it was found that the liver was closely adherent to the diaphragm, the diaphragm to the lung, and a line of cicatricial tissue passed from the old abscess cavity in the liver through the diaphragm and into the lung tissue for a considerable distance. But the first glance at the liver showed that it was syphilitic, containing both cicatrices and gummata, as well as showing waxy degeneration. Near the seat of the old abscess there was another about the size of a walnut, containing a material resembling in consistence cream cheese, and it appeared that this was the result of the transformation of a gummatous mass. From the appearance of the cicatrix of the old abscess, it seemed probable that it also had originated in the same way. The brain showed two changes of importance, viz., an abscess of about the size of a filbert about the supra-marginal convolution, and a slight basal meningitis, probably of syphilitic origin. No symptom of dimness of

vision was discovered, nor was there any paralysis of cranial nerves. The patient had stoutly denied the existence of syphilis during life, but was known to have been a very intemperate man.

IV. ORIGINAL COMMUNICATIONS.

1. *Dr K. M. Douglas* read his paper on **FATTY HERNIÆ**, which appeared at page 918 of this Journal.

Prof. Annandale was sure that the members of the Society would congratulate and encourage *Dr Douglas* in connexion with his work upon this subject. Confining his remarks to fatty hernia in the inguinal region, he would remark that the one point of great practical importance was, that wherever the surgeon exposed a mass of fat in an operation for hernia, he should carefully break up the mass, so as to be sure that no hernial sac was contained in it. He referred to cases in which he had, in operating for hernia, met with small sacs surrounded by lobulated fat.

Mr F. M. Caird was interested in *Dr Douglas's* paper, and thought he did well in emphasizing the importance of extra-peritoneal fatty growths in determining the formation of hernia in certain cases. One might compare the descent of a fatty hernia with the descent of a subcutaneous fatty tumour, seen in other parts of the body.

Mr Cathcart did not think the dragging-down theory was a probable one, because a larger and heavier mass of fat would have to be presupposed than seems to exist at the time when the action is believed to take place. Neither did he think that the condition was in any way similar to the pouch of peritoneum which precedes the descent of the testicle. He considered that the enlargement of the inguinal canal by developing fat, together with intra-abdominal pressure, would account for the association of so-called fat hernia with real hernial protrusions.

Mr A. G. Miller asked *Dr Douglas* how he could explain that contraction of the transversalis muscle opened the internal abdominal ring? *Mr Miller* thought that while undoubtedly the protrusion of a portion of fat might and did tend to produce a hernia, the existence of an opening in the wall of the abdomen might be the original cause of the existence of the extra and unusual amount of fat in that neighbourhood; in other words, the pad of fat might be one of Nature's efforts to close the opening.

Dr J. H. Stiles wished to add his appreciation of the valuable work done by *Dr Douglas*, as he thought that it was only by careful and numerous dissections of the inguinal region that new light could be thrown upon the important and difficult subject of hernia. From what *Dr Douglas* had told them of the formation of the hernial sac, it seemed that they ought to expand their definition of abdominal hernia to a protrusion of a constituent of the abdomen internal to the internal abdominal fascia, otherwise there would be a danger of confusing the terms fatty hernia and epiplocele.

Dr Douglas, in reply, said he had brought the matter before the Society because in his work several instances of fat herniæ presented themselves, and though previously cognisant of the condition, he had not recognised its importance. He thought with *Dr Stiles* that one's idea of the term "hernia" should be so altered as to include descents of masses of sub-peritoneal fat. With regard to *Mr Miller's* question as to the action of the transversalis muscle on the deep ring, perhaps the words "open the ring" were misleading; the muscle, however, in its contraction rendered resistant the inner pillar, and thus the outer boundary was more readily separated from it, and the ring became open. *Mr Cathcart* expresses doubt that a hernia could be produced by the traction exercised by the fat mass, or that such traction was exercised. At first the fat simply distended and filled the canal, but then by adhesion and increased weight it certainly, he thought, did draw on the peritoneum. *Mr Annandale* confirmed his observations as to the practical importance of recognising fat hernia, and his published paper on the subject gave one valuable hints. Though as yet he had not had opportunity to examine the condition clinically or at operation, yet such study led one to believe that it might be possible to treat the condition before the true hernia had developed. The process during life naturally could be studied to ocular demonstration, and at death it was arrested; but if one found such morbid conditions as these recorded in his paper, he thought one might fairly conclude that they were stages in a continuous pathological process.

2. *Mr A. G. Miller* read a paper on a case of **INTESTINAL OBSTRUCTION SUCCESSFULLY TREATED BY LAPAROTOMY**, which appeared at page 915 of this Journal.

3. *Mr Charles W. Cathcart* read a paper on the **PLACE OF SYSTEMATIC LECTURES IN THE TEACHING OF MEDICINE AND SURGERY**, which will appear in a future number of this Journal.

Dr Berry was sorry he had not heard the whole of *Mr Cathcart's* paper. The subject was one which had long interested him. He considered that compulsory lectures on medicine and surgery were an anachronism. He recognised the difficulty in interfering with vested interests, but still could not but feel that what was wanted was an extension of clinical teaching, and a more searching system of examination. He found that in many of the Continental schools attendance on systematic lectures on these subjects was not compulsory. In the Scandinavian schools, for instance, systematic teaching was to a great extent combined with a tutorial system, and the attendance on such was optional on the part of the students. Such a system, he thought, might with advantage be extended in our schools.

Dr James Ritchie said that education should be from the general to the particular; that it was important to have an idea of the whole

field of study to enable the relations of portions to be appreciated. A systematic course gave that general idea. The first cases of any disease which were seen made a more profound impression than the subsequent ones; it was rare to find two cases presenting the same features; peculiarities were common; and it was important that a man should have first impressed on his memory that which was typical in any disease rather than the peculiarities of cases. A systematic course taught the typical; clinically one learned the modifications produced by the individual. Those who desired to abolish systematic courses might go thus far; but they said that, as systematic text-books were so good, the student might as readily acquire a knowledge of the subject from them. Educationalists were agreed that as many as possible of the senses of the pupil should be engaged. Although impressions of sight were more readily recalled than those received through the other senses, it would hardly be asserted that impressions by letterpress were so readily recalled. In reading only one sense was engaged, but in lectures both sight and hearing; and lectures were more copiously illustrated by diagrams, specimens, etc., than any text-book. In the class-room, that indescribable something, which they called sympathy of eager fellow-students, was more conducive to concentration of attention than were the adjuvants of a sitting-room in lodgings. A good teacher would also inspire his students with enthusiasm for the subject, which would render the memory more receptive than it would be in reading; a good teacher would in two minutes demonstrate a diagram or specimen, and with more benefit to the student than he could attain after a much longer time of reading; a good teacher would, by inflections of his voice, convey an impression of importance in relation to certain portions of his subject which no combination of italics nor of small capitals in letterpress could do. The repetition in consequence of lecture on and reading of the same subject at home, instead of being a disadvantage, was of the greatest importance. Some facts were at once indelibly fixed in the memory, but it was otherwise with the most. These might require to be repeated again and again before the impression remained, and even before their full significance was appreciated. In a systematic course it was possible to have a view of the whole field of study, but this was not possible in clinical teaching, because even in large hospitals many diseases were rarely or never seen, and these were by no means those diseases which were of least importance in actual practice. Dr Ritchie desired to say, in passing, that there was urgent need for some rearrangement whereby the student might be able to bestow more attention to dispensary work; he thought, also, that the out-patient department of hospitals should be more utilized. He was opposed to multiplication of systematic lectures on the same subject. He thought that the question might pertinently be asked, What was a clinical lecture? To introduce a patient to a large class, to point

out a few features of the disease from which he suffered, and then to deliver a systematic lecture on that disease, was not a clinical lecture. Clinically, disease ought to be approached from the symptomatic side, and the student should be brought as far as possible into practical relation with the patient. He thought that the whole arrangements for clinical lectures should be revised. Dr Ritchie thought that each systematic course should, as far as possible, be a complete one; that the teacher should not aim at cramming into the student's memory the sum of knowledge which had been acquired regarding each disease, but to convey only the most important features, some in more detail, others in outline, leaving a considerable amount to be filled in by the clinical teacher.

Professor Annandale remarked that it was always pleasant to find enthusiastic young teachers bringing forward their views upon medical education. He was of opinion that students, before commencing the study of medicine and surgery, should be obliged to have passed their examinations in the preliminary subjects. If this was done, the student's mind and time would be free to study medicine and surgery. He approved of limited and condensed systematic lectures, and he also approved of some reform in clinical teaching, in the direction of more bedside work.

Mr A. G. Miller remarked on two points. In regard to the student's system of too close note-taking, he agreed with Mr Cathcart that it was bad for the students, and very unpleasant and inconvenient for the lecturer. He considered that the practice arose from the students' fear that they would not pass their examinations unless they were able to "get up" the *ipsissima verba* of their teachers. There was another point—to which Mr Cathcart had not, however, referred—which was an evil, viz., overlapping. For example, in the subject of inflammation, students got the physiological, pathological, medical, and surgical aspects dinned into them by so many different teachers till they were quite sick of the subject, and generally thoroughly confused.

Mr Cathcart briefly replied.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LL.—MEETING V.

Wednesday, 12th March 1890.—Dr BERRY HART, *President, in the Chair.*

I. *Dr John Thomson* showed a case of RHYTHMICAL, SWAYING MOVEMENTS OF THE LOWER HALF OF THE BODY in an infant. The patient, a delicate looking little girl of 15 months, had been sent to Dr Thomson at the New Town Dispensary by Dr K. M. Douglas. The present complaint had commenced five weeks previously, along with rather profuse diarrhoea; her teething, which was a little backward, was proceeding at the time. There had been no fits or

other nervous symptoms. As to the movements, when the child lay on her back or sat leaning backward, the spasms consisted in an alternate forward and backward movement of the pelvis, accompanied by adduction and abduction, extension and flexion of the thighs, and extension of the legs. When she sat leaning forward so that her thighs became a fixed point, the movement became one of swaying backward and forward of the trunk, with flexion and extension of the legs on the thighs. When she was put on her feet all the movements ceased at once; they also ceased during sleep. Occasionally there was a cessation of the spasms for some minutes, if the child's attention was attracted by anything; but usually they recurred regularly at intervals of about two seconds. There was no similar movement of the head or upper parts of the body, and no nystagmus. There was a slight amount of "facial irritability," light percussion over the zygoma producing contraction of the orbicularis palpebrarum on the same side. The spasmodic movements seemed to cause absolutely no pain or inconvenience to the child. There was enlargement of the costochondroid articulations, but no other signs or symptoms of rickets. The vulvar mucous membrane seemed irritated, and the child was frequently noticed to rub the part. The diarrhoea still existed, although much better; when the stools were numerous, the movements were more marked. One of the patient's sisters, who was now 7 years old, was said to have suffered from the same condition. It began during teething, when she was about the same age as this patient, and was accompanied as in this case by diarrhoea; she also had three fits. The condition lasted in a modified form till the child was about 6 years old—latterly only occurring for a short time when she went to bed at night. The condition was of a functional nature, probably reflex in origin, and depending primarily on the diarrhoea; but also, in all probability, closely connected with the irritation of teething. It seemed likely also that the irritation of the genital mucous membrane was an important element in keeping up the unnatural movements. In this case the treatment had so far been directed against the diarrhoea, and had not been very successful. It was proposed now to use regular irrigation of the lower bowel with warm water, and to give bromide of potash. There was no condition of the teeth requiring local treatment.

II. *Prof. A. R. Simpson* showed a GERMAN MIDWIVES' OBSTETRIC BAG.

III. *Dr McVie* showed (a) an early HUMAN EMBRYO, not over forty days old. Patient menstruated on January 8th, the flow lasting four or five days. Fecundation occurred probably on the 15th. Hæmorrhage occurred again on February 22nd, and the ovum was expelled early on the morning of the 25th. (b) A specimen of a THREE MONTHS' OVUM.

IV. *Dr Fraser Wright* showed a specimen of MYXOMATOUS DEGENERATION OF THE CHORION, whose history was as follows:—On the 15th February 1890, he was asked to see with a practitioner in Leith a woman, æt. 26, of very neurotic temperament. She was married on June 5th, 1889. She menstruated regularly till the end of September, since which time she had amenorrhœa. About the end of December severe vomiting and salivation commenced, but yielded somewhat to treatment. On the morning of the 8th February 1890 she commenced to bleed, but under proper treatment this nearly ceased till the 14th February, when it became much more severe. On examination the uterus was found to extend to one inch above the umbilicus. It was triangular in shape, the outline slightly but not markedly irregular. No foetal parts could be felt, nor could foetal heart sounds be detected. The uterine bruit was distinct. There was no excess of liquor amnii. *Per Vaginam*.—Cervix distinct; os not at all patulous; no foetal parts felt, nor ballottement made out. The diagnosis made was that either she was six months pregnant, menstruation having occurred during the first two months, or she was only four months pregnant, with some morbid product of conception—probably hydatid mole. She was put on small doses of morphia and ergot, absolute rest in bed being also enforced. The bleeding got much less profuse, and remained so for six days; but on the 21st February Dr Wright was again asked to see her, as she was losing great quantities of blood. There were also severe pains in the back like ordinary labour pains. *Per Vaginam*.—The os uteri was slightly dilated, and placental tissue could be felt through it. The blood came in jets during pains. The patient was chloroformed for the purpose of dilating the cervix to empty the uterus of whatever it might contain. But as the first Barnes' bag was being introduced, the uterine contractions got much stronger, and expelled a mass of vesicles. It was unnecessary to proceed further with the dilatation, as the uterine contents were now coming freely through the os, which just admitted the tips of two fingers. Aided by pressure from above, the uterus expelled nearly the whole mass, weighing probably (exact weight not ascertained) about 3 lbs., a few vesicles which still remained being removed by two fingers in utero. The chief interest in this case lay in the uncertainty of the diagnosis, although the probability of hydatid mole was great. This was because of four months' amenorrhœa with a uterus corresponding in size to a six months' pregnancy, the absence of foetal parts and heart sounds, and the absence of excessive liquor amnii, so that twins and hydramnios could be excluded. There remained, therefore, the strong probability of hydatid mole causing the enlargement,—always reserving, of course, the possibility of a six months' pregnancy, with probably a low implantation of the placenta. There was no suggestive irregularity in the feel of the uterus, nor had she passed any vesicles. The patient was pregnant for the first time.

N.B.—This patient has since died of pyæmia.

V. *Dr Brewis* showed a large FIBRO-CYSTIC TUMOUR OF THE UTERUS, weighing 20½ lbs., which he had removed from a patient by abdominal section. The patient made a good recovery.

VI. *The President* showed (for Dr James Young) a specimen of BATTLEDORE PLACENTA.

VII. *Dr Barbour* showed the most recent form of Neugebauer's VAGINAL SPECULUM, and presented some BOOKS from Dr Neugebauer.

VIII. *Dr Milne Murray* showed a new form of ELECTRIC BATTERY adapted for general medical purposes, including electrolysis. It was the invention of Mr K. Schall of London, and the instrument shown was made by him. The cell was very compact (1 inch square on section), and its electro-motive force was high—1·7 volt. The plates are zinc and chloride of silver, the latter in an asbestos sheath, and the exciting liquid is a solution of caustic potash. The internal resistance is low (about 2 ohm.), so that 4 to 8 of the cells are sufficient for supplying a laryngoscopic or cystoscopic lamp. The battery is eminently portable, and admirably adapted for gynaecological practice. The laboratory tests show that the cell is very durable, the current being maintained with great constancy, and local action being small.

IX. *Dr Milne Murray* read his paper ON THE TREATMENT OF PELVIC DISEASES BY ELECTRICITY, which will appear in a future number of this Journal. The adjourned discussion upon Dr Fraser Wright's paper and the discussion upon Dr Milne Murray's were taken together.

Dr Halliday Croom congratulated Dr Fraser Wright on the careful analysis of his cases which he had read; and to Dr Milne Murray he ventured to offer his congratulations upon one of the most carefully scientific papers on the electro-therapeutics of the uterus he had ever listened to. Dr Murray had advanced four theses with regard to the influence of electricity in the treatment of uterine disease:—(1.) With regard to hæmorrhage,—he was entirely at one with him in the conclusion he had drawn from his experience, that the continuous current reduced hæmorrhage. This was entirely in accord with what Dr Croom had found; but he was obliged to make this proviso, that the effects were but temporary. This, he thought, was no argument against Dr Murray's treatment, because after all, the great majority of fibroid tumours required but temporary treatment to allow them to go on to a favourable issue. He did not think that electricity possessed in this respect any claims superior to those of rest, ergot, hamamelis, and other styptics, but he did think that it was more elegant and perhaps more persistent for those who were in a position to bear the expense of having it. He had not met with cases in which the cure of hæmorrhage by electricity was permanent, though he believed that at or near the menopause its effects were more distinctly palliative than any other form of treatment. (2.) With regard to

pain,—he was obliged to say that so far as fibroid tumours were concerned, the great majority of cases where pain was accentuated—with, of course, the exception of those where the tumour was being expelled—were those cases where the pain depended upon some cystic or other degeneration of the ovaries. In so far as that was concerned, he had found the most complete abolition of pain, and at the same time of the other symptoms associated with fibroid tumours by removal of the uterine appendages, and he was disposed to think, from a considerably extended experience of removing the appendages in such conditions, that in those exceptional cases where radical treatment was required at all—and they were very few—this operation offered by far the best results. He was distinctly of opinion that where a tumour was increasing in size, where the hæmorrhage was marked, and where pain was a distinct symptom, and where the tumour was not bigger than a four months' pregnancy, and further, where the patient was not at or near the menopause, laparotomy gave the most satisfactory results. (3.) With regard to diminution of the tumour, he was obliged to say that he had never in his experience met with any tumours which had shown any disposition to diminish through the influence of electricity more than by any other means. On the contrary, he had found more significant cases of diminution in size from simple rest and ergot than from any electric treatment whatever. Rather was he inclined to think that the electric current increased the development of muscular tissue, and his experience had been that some tumours had grown more rapidly after the use of the electric current. So far as his experience went he had never seen any tumour whatever whose dimensions had been permanently reduced by electricity. (4.) In regard to the therapeutic use of electricity in cellulitic and other deposits his experience was distinctly limited, but so far as it went, although not questioning for a moment the accuracy of Dr Murray or Dr Wright's cases, he was obliged to say that he had not met with the same favourable results. There, if ever, he would welcome treatment, because after the ordinary recognised treatment of cellulitis had been exhausted he had nothing to fall back upon, and he gladly hailed any treatment which would offer a means of dissipating these distressing complications. But so far as his personal experience went, electricity had not fulfilled the expectations which its promoters had led him to anticipate. Lastly, with regard to the theory of its action, he thought that the positive pole seared and destroyed the mucous membrane just in the same way as any other escharotic; and on living tissue, therefore, unless persistently continued, was but temporary, and he believed that its beneficial effects, if any, on the tumour itself were secured by the contraction of the muscular fibres of the uterus and the resulting diminution of the blood supply to the tumour.

Professor Simpson thought the Society was to be congratulated not only on the excellence of the papers in which the subject had

been brought before them, but on the lively criticism of these with which Dr Croom had opened the discussion. Dr Croom was hardly correct in saying that there was no dispute as to the relative value of laparotomy and electricity, because the air of gynæcology was full of clamour on this very point, and it was delightful to find that the subject can be discussed among us with all courtesy and good feeling. The contributions made by Dr Wright and Dr Murray were both of great value, and as Dr Wright had explained that the cases that form the basis of his communication had been treated under his (Prof. Simpson's) observation, he wished to state that the records were every way trustworthy, and that Dr Wright had expressed very correctly the kind of impression that he himself had formed as to the value of electricity in the treatment of uterine fibroids and pelvic inflammations. The treatment required much patience on the part of the gynæcologist who would carry it out successfully, but unquestionably it was much safer than laparotomy, which in his (Prof. Simpson's) view should not be had recourse to in most cases of uterine fibroid until the influence of electricity properly applied had proved a failure.

Dr J. W. Ballantyne said that it was difficult to eliminate entirely other methods of treatment in cases where the electrical treatment was being administered, for the patients were in most cases enjoying the benefit of hospital diet and hygiene, and were also having more rest than was possible for them to have outside the Infirmary. The vaginal douching incidental to the battery treatment ought also to be taken into account in estimating the benefit derived from the treatment by electricity, more especially in cellulitis cases. With regard to the effect produced by the electrical current in the case of fibroid tumours, Dr Ballantyne thought that both Dr Wright and Dr Murray had left too much out of account the various changes of a degenerative kind which ensue in fibroids in which there is disturbance of the circulation, *e.g.*, fatty degeneration, absorption of fat, calcification, etc. He was much struck by the frequency with which hypogastric pain followed the application of the battery, pointing as it did to inflammation in or around the tumour. The papers of Drs Milne Murray and Fraser Wright were most valuable and trustworthy additions to our knowledge of the theory and practice of electricity in gynæcology.

Dr A. H. F. Barbour had read with great pleasure the careful record of Dr Wright's cases, which contrasted favourably with the mass of papers on this subject, in which there was oftener merely an expression of opinion rather than a careful statement of facts. He thought that the question at issue was not whether the electrical treatment benefited fibroids—there could be no doubt of its beneficial effects—but what place electricity was to hold in the treatment of fibroids. All methods of treatment might be classed under two heads—medical, which was largely a treatment of symptoms; surgical, which dealt with the morbid condition. In which category were we to place electricity? He thought in the former.

No doubt it sometimes, though rarely, caused a tumour to diminish in size, but ergotin (especially when given hypodermically) had done the same. The weight of evidence was going to show that electrical treatment was symptomatic, and that electricity ranked with ergotin. He had been greatly impressed by what Dr Steavenson, the electrician to St Bartholomew's Hospital, had said,—“That it was a question whether, in the case of hospital patients, the advantage obtained by the electrical treatment is sufficiently great over other modes of treatment as to call for the expenditure of time and trouble necessary for carrying it out.”

Dr Fraser Wright, in reply, thanked the Fellows for the kindly way in which his paper had been received. He thought the Society was greatly indebted to Dr Milne Murray for his valuable paper, and was very pleased that such a profitable discussion had followed the two communications on this important subject. He wished to ask Dr Murray if he commonly punctured tumours through the anterior fornix, as this was opposed to Apostoli's practice, owing to the great risk of penetrating the bladder. Also, he would like to know if the cases of subinvolution recorded were successful as regards diminution in size of the uterus. Dr Croom had stated that, in so far as he had any experience of this treatment, the results, though satisfactory for the time being, were not permanent. But Dr Croom was likely to see *only* those cases in which a recurrence of the symptoms had taken place, so that his experience in this respect could not be applied to the effects produced in general. Still, it was very satisfactory to note that, in his opinion, operation should be the *dernier ressort*—exactly the position the paper advocated. In so far as the question of competition between the two methods—operative and electrical—was concerned, Dr Wright did not at all agree with Dr Croom. He (Dr Wright) thought there was a great deal of competition, so much so that not a few gynæcologists would never recommend the electrical treatment at all, preferring—though, it must be admitted, on unsatisfactory and often very unscientific grounds—the more familiar, more brilliant in its immediate effect, and less tedious treatment, viz., operation. But, as Professor Simpson had already just mentioned this, he would not discuss it further. Dr Ballantyne had taken exception to Dr Wright not having absolutely discounted many possible factors in the treatment employed. For example, he mentioned that the patients were still getting a hot douche, but as they had been douched (and much more frequently and thoroughly) before the electrical treatment was commenced, and without any benefit, this objection was of no weight. In reply to Dr Barbour, he had to state that ergotin by subcutaneous injection had not been tried previous to commencing the electrical treatment. The feeling of those Fellows who had spoken evidently was, that before having recourse to operative measures a trial of electricity should be made—a conclusion in which all who had practical experience of the question would undoubtedly concur.

And even if the results were often not absolutely permanent, they frequently conferred immunity from suffering for a considerable length of time, where no operative procedure could be expected to produce such a beneficial effect.

Dr Milne Murray, in reply to *Dr Croom*, said that while in his (*Dr Croom's*) case there was no question between electricity and laparotomy, one had only to read the discussions which had taken place elsewhere to see how keenly the matter had been contested, and how marked was the partisanship evinced. In reply to *Dr Wright*, he said that in the case referred to he had punctured the anterior fornix because he could not reach the posterior one. Naturally in all cases where possible he should prefer puncture in the posterior fornix for obvious reasons. But he wished to say that in his opinion puncture was always to be avoided if possible. Its benefits were usually problematical, and its risks very imminent.

X. THE REPORT OF THE ROYAL MATERNITY HOSPITAL FOR THE QUARTER ENDING 31ST JULY 1889, by *Dr Alexander Keiller, jun.*, and *Dr W. G. Aitchison Robertson*, was presented to the meeting.

Part South.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on *Materia Medica*, Surgeons' Hall, etc., etc.

THE DIURETIC ACTION OF THEOBROMINE.—After a number of experiments with the salts of theobromine *Dr Gram* finally succeeded in finding a combination of theobromine with salicylate of sodium, a compound which corresponds to one of the so-called soluble double salts of caffeine. While the theobromine is only soluble in about 1000 parts of water, sodio-salicylate of theobromine, or, as he calls it, "diuretin," is soluble in less than one-half its own weight of water on warming slightly, and remains in solution after cooling. This compound occurs as a white powder, containing 50 per cent. of theobromine, and may be administered to the extent of about ninety grains daily, in 15-grain doses. It is stated that this substance may be given even to patients with serious heart affections without even producing nausea or vomiting. *Dr Gram* reports detailed notes of eight different cases in which theobromine was used as a diuretic; from these he concludes that although the pure theobromine is absorbed with difficulty, after its absorption it acts as a marked diuretic without any influence on the heart. It is, therefore, a direct renal diuretic. Sodio-salicylate of theobromine, on the other hand, is readily absorbed; it acts as a powerful diuretic,

and it has never produced the slightest unfavourable symptom. Dr Gram does not believe that the diuresis is at all attributable to the sodio-salicylate, for he has in many cases employed the latter without finding the slightest diuretic effect produced. Of course it is not to be expected that we have in theobromine a specific for dropsy, but when we recognise that nearly all the cases in which Dr Gram employed this substance were cases in which the ordinary diuretic remedies, such as heart stimulants, had not produced the slightest relief, it is evident that theobromine acquires especial value. Of course, in cases where there is extreme degeneration of the renal epithelium, a diuretic effect is not to be expected.—*Therapeutic Gazette*, February 1890.

THE ANTISEPSIS OF THE RENAL PASSAGES BY THE INTERNAL USE OF SALOL.—In the intestinal tube, as a consequence of the action of the pancreatic juice, salol splits up into carbolic and salicylic acids, which are then eliminated by the kidneys, carbolic acid without being changed, salicylic acid after combining with sodium. Investigations by Neucki, Sahli, and Lépeice have proved the truth of this statement beyond contradiction, and these writers have, as a consequence, recommended its internal use in "internal disinfection" in cholera, typhoid fever, and other bacterial diseases. Dr Dregfuss (*Wiener Medizinische Blätter*, December 19th, 1889), bearing these facts in mind, has recommended its use internally as a means of inducing the passage of an antiseptic fluid through the kidneys, ureters, bladder, and urethra; and claims that it acts in a much more intensive manner, and covers a wider field than can be accomplished through the injection of antiseptic fluid. Sahli, further, has shown that the urine of patients who have taken salol internally is aseptic, and that salol in large doses is well borne, and never produces toxic symptoms. It is, therefore, quite as suitable for producing antiseptis in the urinary passages as naphthol is for the antiseptis of the intestinal tract. Dregfuss has employed salol, either alone or in composition with various balsamics, in blennorrhoea, the full dose varying from 75 to 120 grains. Even in acute cases, treated at the very outset, this mode of treatment rapidly diminished the secretion, and in some few cases arrested it within a few days. Its effects are especially marked in combination with the use of cubebes or copaiba. Finally, Dregfuss recommends this use of salol in operations upon the urinary organs, for in this way the urine is kept aseptic, and one source of danger is thus avoided.—*Therapeutic Gazette*, February 1890.

ABRUS PRECATORIA.—At a recent meeting of the Society of Naturalists of Dorpat, Professor Robert (*Wiener Medizinische Blätter*, 7th November 1889) presented an account of a new poison, of an albuminous nature, which he had extracted from the seeds of the *Abrus precatoria*,—a plant already known for hundreds of years. These seeds occur in the form of red bodies, about the size of a pea, with a black spot on them, and are spoken of in the Indies

as "chicken eyes," while in Germany they are described as "pater-nostererbsen," from whence the attribute "precatoria" originates. As a remedy, the *Abrus precatoria* seeds have been for a long time employed as irritants and antihæmorrhage remedies; in India they are frequently employed for poisoning, while in Brazil they are used in the treatment of ophthalmia. In India the seeds are rubbed up in their fresh condition, and then rolled up into a fine roll, whose sharp point stuck into the skin is sufficient to kill any man or animal, and leaves no more mark than the sting of an insect. It is stated that entire English colonies have been murdered in India in this manner. Professor Robert has examined the albuminous constituent, and has found that it is one hundred times more poisonous than strychnine, and is similar in its action to the poisons which were extracted from castor-oil seeds. Like all other albuminous poisons, it loses its activity when boiled, and consequently the *Abrus precatoria* seeds may be even used as food. Dr Robert has found that death is caused when this poison is introduced into the blood, through the coagulation of the blood-corpuscles.—*Therapeutic Gazette*, February 1890.

OCCASIONAL PERISCOPE OF TUBERCULOSIS.

By R. W. PHILIP, M.A., M.D., F.R.C.P.E., Physician to the Victoria Dispensary for Consumption and Chest Disease, Edinburgh; and Lecturer on Practice of Physic, Edinburgh School of Medicine.

THE CURABILITY OF PHTHISIS.—It is sometimes asked by those who affect to distrust the value of modern bacteriological research, What practical good has followed the announcement of Koch's discovery of the tubercle bacillus? In reply to unphilosophic questionings of this nature, it is useless to refer to the large and increasing number of important researches, which trace their origin to the work of Koch. Such cavillers cannot but admit, however, that the whole subject of tuberculosis (more particularly pulmonary consumption) occupies a very different place in the view of the physician now as compared with twenty years ago. The mind of the physician of to-day is on the alert for the discovery of fresh methods of attack to a degree that was then little dreamt of, and the last eight years have produced an extraordinary number of suggestions towards a rational therapeutics of tuberculosis. Of paramount importance have been the investigation and discussion of the etiology and natural history of the complex processes which are included in the term. Some of the suggestions, perhaps, have been hasty and the researches imperfect, but the fact remains that inquiry has been marvellously stimulated in that particular direction.

One of the fruits of this diversion of thought is to be found in the combined clinical and pathological records of the sanatoria which have been established in various parts of the world for the treatment of chest disease. In the *Mittheilungen aus Dr Brehmer's Heilanstalt für Lungenkranke in Görbersdorf*, we have a record of

all the cases treated in that establishment during the year 1888, with special reference to etiology and treatment. In all, 554 phthysical patients were under treatment. Of the 506 cases in which satisfactory history could be obtained, it was shown that 36.3 per cent. were hereditarily predisposed (in respect of previous evidence of phthisis in the family), and that in the remaining 63.7 per cent. no such hereditary predisposition existed. But Dr Brehmer lays stress on the view, that etiologically other genealogical conditions play an even more important part, especially the position of the patient as a younger member of a large family, in which the later births have followed in rapid succession. In respect of this question, he found that of 300 phthysical patients free from definite hereditary taint, 12.3 per cent. gave evidence of the phthysical habit of body. The statistics are of further interest with regard to the comparative frequency of right or left sided commencement of the lung process. Of the 554 cases, 462 afforded proof that the left side had been first affected; 92 had begun in the right side.

The sputum of every patient in the sanatorium is examined for the tubercle bacillus. If the result be negative, the sputum is examined several times weekly for say three weeks, and only if the result continue negative, is it reported free of bacilli. Of the 554 cases under treatment, 7 per cent. are so reported.

As to the result of treatment, the report shows that of the 554 cases, 8.8 per cent. were cured (*i.e.*, local and general conditions improved as much as possible, and bacilli and elastic tissue disappeared from sputum, and remained absent for weeks or months), 13 per cent. were almost cured (*i.e.*, local and general conditions improved considerably, but bacilli still remained present, though reduced, in the sputum, the results being proportionately good according as the stage of the disease was early). The figures are of peculiar interest from this point of view, for they show that of the 554 cases sent for treatment, only 49 were in the first stage of phthisis, *i.e.*, in the stage of consolidation, while in all the others the process of breaking down had commenced. It is to be feared that this throws light on some of the want of success in ordinary practice. Cases are not detected early enough, or they are not treated with sufficient urgency, and the aid of the consulting physician is called in only to sign the death warrant.

The record further indicates by statistics the improvement which is possible in the great majority of cases, apart from complete or proximal cure. The report bears evidence of fair and painstaking observation in a difficult, but most interesting field.

PROPHYLAXIS OF PHTHISIS.—As illustrating the change of attitude towards phthisis, both professional and lay, which has recently taken place, we note with interest the following circular which has been issued by the Health Department of Providence City:—

“Consumption causes more deaths than any other disease the human race is subject to. Nevertheless, it is to a very large extent

preventible. It is, though not generally known, a contagious disease. Consumption, or pulmonary tuberculosis, is in every case caused by disease germs which grow in the lungs in enormous numbers. When a person is sick with this disease these germs are coughed up in great quantities in the expectoration, and when this becomes dry and crumbles, or is trodden to dust, the germs float about in the air, and are liable to be breathed into the lungs of any one. If the lungs of a person who does breathe them in are poorly developed, or if the constitution is feeble, the germs are very sure to grow and cause the disease. Unfortunately, we do not know how to kill them when they are once in the air-passages. The best that can be done is to build up the system and strengthen the lungs by the use of cod-liver oil, good food, and fresh air.

"Much, however, can be done to prevent the spread of the disease by destroying the germs as completely as possible in every case.

"(1.) No person with consumption should ever spit on the floor or in the street. If handkerchiefs or bits of cloth are employed, they should be at once disinfected or burned. A good plan is to use a small wide-mouthed bottle with a rubber stopper. The contents should be thrown into the fire, and the bottle and stopper thoroughly scalded with *boiling* hot water every day.

"(2.) The dishes used by a consumptive should be at once scalded, and the unwashed underwear and bed-clothing should not be thrown with that of other persons, but should be thoroughly boiled as soon as possible.

"(3.) When a person with consumption has diarrhoea, the discharges from the bowels should at once be disinfected, as at this time they contain the disease germs. A good way is to add a half-teacupful of fresh chloride of lime, or fill up the chamber vessel with *boiling* water.

"(4.) No one with consumption should sleep in the same room with another person, and the room occupied by a consumptive should be thoroughly cleansed as often as possible.

"(5.) No mother with consumption should nurse an infant, and children ought never to be taken care of by a consumptive person."

Similar rules were recently adopted by the Health Department of New York City.

THE VALUE OF COD-LIVER OIL.—The *Bulletin de l'Académie de Médecine* of February 1890 contains a memoir by MM. Armand Gautier and L. Monigues on the physiological action of cod-liver oil, in which it is sought to be shown that the activity of this important oil is not due solely to the alkaloidal principles which it contains, but is explicable on a variety of grounds. As the result of careful investigation, they conclude, therefore,—1. That the oil acts in virtue of the fats which are unusually assimilable and readily available for the maintenance of body heat. 2. That it acts as an energetic repairer of tissues by reason of its richness in phosphates and other phosphorus containing bodies. By stimulating the reproduction of cellular elements, phosphorus preserves

the tissues in a state of perpetual youth; in other words, raises the vital resistance offered by the tissues to destructive agencies by which they are threatened. Phosphorus is aided in this by the bromides and iodides which are present. 3. That through its alkaloids (butylamine, amylamine, morrhaine) and morrhuc acid it stimulates the nervous system directly, accelerating metabolism, increasing the excretion of urine and sweat, and improving the appetite.

PERISCOPE OF PUBLIC HEALTH.

BY HARVEY LITTLEJOHN, M.A., M.B., B.Sc. (Publ. Health).

EFFICACY OF SAND FILTRATION.—In connexion with the typhoid epidemic in Berlin in 1889 Dr Carl Fränkel, the eminent bacteriologist, made a series of experiments in order to try and solve the question as to how far sand filtration is capable of freeing water from any infectious germs contained in it. The epidemic affected almost solely the east, north, and south quarters of the town, which have this in common, that they get their drinking water from the same source. The author, in conjunction with the engineer of the water-works, constructed two sand filters the exact counterparts, on a reduced scale, of those in actual use. These were tested with water containing pure cultures of bacillus violaceus, the cholera bacillus, and, lastly, the typhoid bacillus. The result of the experiments afforded ample proof that sand filtration, contrary to the commonly accepted view, is not capable of retaining spores from the water passing through the filter. Neither the usual micro-organisms found in water nor yet cholera and typhoid bacilli are with certainty kept back. The number of micro-organisms passing through into the filtered water depends on the number primarily present, and also on the rate of filtration. The beginning and end of any filtration period are particularly dangerous as regards the passage of bacteria, because in the first case the filter has not acquired its full filtering power; while in the second, the pressure of the upper layers of the filter, and probably the gradual growth of the bacteria through the upper layers, favour the descent of micro-organisms.—*Deutsche Med. Wochenschrift*, No. 50, 1889.

CHLORINE AS A DISINFECTANT.—After an exhaustive series of experiments, Dr Geppert has come to the conclusion that chlorine is the best antiparasitic, since it destroys the virulence of anthrax spores in a few seconds. A 1 per cent. solution, certainly not a very poisonous one, is sufficient to alter, almost in a moment, the most important characteristics of spores. He also regards it as the best disinfectant, as it offers the greatest security of perfect purification of soiled articles.—*Berliner Klinische Wochenschrift*.

DIPHTHERIA IN BERLIN.—Virchow, in a paper read before the Berlin Medical Society, states that the number of cases of diphtheria occurring in Berlin during the years from 1883 to 1888 were respectively, 8628, 8915, 7710, 6416, 5557, 4108, while the corresponding deaths were 2655, 2446, 1816, 1535, 1304, 1018. He

draws attention to the fact brought out by the statistics, that the greatest increase in the number of cases occurs regularly during the months from October to January, and therefore thinks that hospitals should prepare themselves for the increased numbers at that time, both as regards wards and nursing.—*Berlin. Klin. Woch.*

PROPHYLAXIS OF TUBERCULOSIS.—As a result of the long discussion on the prophylaxis of tuberculosis at the Academy of Medicine, the following resolutions were drawn up and agreed to:—
1. Tuberculosis is a parasitic and contagious disease. 2. The micro-organism, the cause of the disease, exists specially in the dust arising from the dried sputum of consumptives and the pus from tuberculous sores. 3. The most certain means of preventing contagion consists in destroying the sputum and pus before they have become dry, by means of boiling water or by burning. 4. The parasite is sometimes present in the milk of tuberculous cows. It is therefore prudent to boil milk, especially if destined to be the food of infants. 5. The Academy of Medicine calls the attention of all authorities to the danger caused by the presence of tuberculous patients, in the various institutions over which they have control, such as schools, barracks, and public offices.—*Archives Générales de Médecine.*

DR CAMERON has observed that the diminution in the Huddersfield death-rate from diarrhoea during the last few years has been in direct proportion to the diligence with which the hose-pipe has been used.—*Sanitary Record.*

SCHOOL HYGIENE AND SHORTSIGHTEDNESS.—Hippel, after nine years' observation of the scholars in the Giessen Gymnasium, concludes that, in spite of external construction and internal arrangements of schools, notwithstanding the avoidance of overcrowding of pupils, a not inconsiderable number became shortsighted, and among those already myopic the condition is increased. By following, however, proper hygienic principles in the construction of schools, and regulating the course of study, the severity of the myopia may be much diminished, and in most cases kept within bounds, and a diminution of the visual acuity avoided. The complications also of myopia, namely, staphyloma posticum and cramp of the accommodation muscles, arise more seldom.—*Wiener Klinische Wochenschrift*, No. 10, 1890.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—The following gentlemen passed their final examination for the degree in Medicine at the sittings held on 16th April 1890, and were admitted L.R.C.P. Ed.:—John Forrest Dickson, Portland, Oregon, U.S.A.; Thomas Charles Walker, Midcalder; George Robert Cruickshank, Windsor, Ontario, Canada.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The following candidates passed their final examination for the triple qualification in Medicine and Surgery at the sittings held in April 1890, and were admitted L.R.C.P. & S. Ed., and L.F.P. & S. Glasg.:—Alfred Howell Atkin, Birmingham; John Gordon M'Candlish, Leeds; John Dale, Dumfries; Thomas Finney, Buxton; William Pirie, Arbroath; St John Topp Foott, Cork; Francis Horatio Amner, Kew, London; Henry George Magrath, Cork; Philip Johnson, London; Annie Wardlaw Jaganadham, South India; Joseph Henry Hodson, Egoria, Russia; James M'Call Morrison, St Andrews; Thomas Stephen Macmahon, Longford; Daniel Joseph Murphy, Cork; Louis Marie Antoine Enguerrand de La Roche Souvestre, Mauritius; John Nesbitt, Ireland; Richard Fitzgerald, County Cork; George Frederick Richards, County Durham; John Albert Philips, County Dublin; Maurice Anderson Wilson, Bradford; Giovanni Ansaldo, San Remo; George Gunn Sinclair, Hamilton; Richard Michael Connolly, Templemore, County Tipperary; David Mark, Belfast; John Dunne, Killinardrish, County Cork; Samuel Burns Carlisle, County Down; Robert Archibald Hollingsworth, Madras; John Franklin Campbell, Ontario, Canada; George Frederick Read, Tasmania; Patrick Edward M'Elligott, Kerry; John Patrick Walsh, Cork; and Thomas Callaghan, Cork.

ON March 26th a match by holes was played on Gullane Links between teams representing the Royal College of Physicians and the Royal College of Surgeons of Edinburgh. The weather was fine, but a strong gale from the west made the play somewhat difficult, especially on the more exposed parts of the links. The match ended in a win to the Royal College of Surgeons by twenty holes.

PHYSICIANS.		Holes.	SURGEONS.		Holes.
1. Dr Ballantyne,	.	0	Dr John Duncan, <i>President</i> ,	.	9
2. " Tuke,	.	1	" Berry,	.	0
3. " Stockman,	.	0	" Cadell,	.	1
4. " P. A. Young,	.	0	" Argyll Robertson,	.	8
5. " Carmichael,	.	0	Mr Chiene,	.	5
6. " Haultain,	.	1	Dr Blaikie,	.	0
7. " Ronaldson,	.	2	" Wallace,	.	0
8. " Tuke (junior),	.	0	" Scott Lang,	.	6
9. " Dunlop,	.	3	" Wood,	.	0
10. " Noël Paton,	.	7	" Mackenzie Johnstone,	.	0
11. " Webster,	.	1	" Ronaldson,	.	0
12. " Gibson,	.	0	" Cathcart,	.	6
15			35		

The Fellows were entertained to lunch at Gullane House by Dr Tuke, and in the afternoon various foursomes were played. At a meeting held after the match, a Royal Colleges Golf Club was formed, and Dr Argyll Robertson, F.R.C.S.E., was elected Captain; Dr P. A. Young, F.R.C.P.E., was appointed Treasurer; and Drs Russell Wood, F.R.C.S.E., and Noël Paton, F.R.C.P.E., Secretaries; and it was arranged that a trophy should be procured, to be played for annually, and to remain in the custody of the winning College for one year.

QUEEN VICTORIA'S JUBILEE INSTITUTE FOR NURSES, SCOTTISH BRANCH.—The newly appointed Scottish Council consists of the following:—The Countess of Rosebery (President), the Marchioness of Lothian, the Hon. Lady Campbell of Blythswood, Mrs W. J. Ford, Mrs Gairdner, Glasgow; Mrs Trayner, Miss Louisa Stevenson, Miss Guthrie Wright, Miss Lumsden, Aberdeen; Sir Thos. Clark, Bart.; Dr Joseph Bell, Sir Douglas Maclagan, Bart.; Dr Grainger

Stewart, Sheriff Crichton, the Right Hon. J. B. Balfour, Mr J. S. Pitman, Mr H. A. Hotson, Lord Hamilton of Dalzell, the Rev. Dr Cameron Lees, Rev. Dr Donald Macleod, Glasgow; Rev. Dr Wilson, Barclay Church; Rev. Dr Andrew Thomson, and Mr A. H. Moncur, Dundee. At the first meeting of the Council held last week, the following appointments were made:—Vice-Presidents, Sir Douglas Maclagan and Sheriff Crichton; Executive Committee, Dr Joseph Bell, Sheriff Crichton, Rev. Dr Cameron Lees, Rev. Dr Wilson, Rev. Dr Thomson, Mrs Ford, Mrs Trayner, Miss L. Stevenson, and Miss Guthrie Wright; Hon. Treasurer, Mr Hotson; Hon. Secretary, Miss Guthrie Wright, 2 Lansdowne Crescent; Trustees, Sir Thomas Clark, Dr Grainger Stewart, Rev. Dr Donald Macleod, and Mr Pitman. The Council passed various estimates for the preparation of the houses to be purchased as the Scottish District Training Home for Nurses at 29 and 30 Castle Terrace. The price of the main-door house and the two flats is £2150. Towards this "A Friend" has offered £100 on condition that nine other donors each contribute the same. Five of these hundreds have already been promised or paid. About £450 has also been contributed in smaller sums. The accommodation in the temporary training home in North Charlotte Street has become quite inadequate to meet the rapidly increasing demand from various parts of Scotland for trained nurses. The Central Council of the Institute have voted an additional grant of £200 for two years, to enable the Scottish Committee to train more nurses pending the increase of local funds.

CHRISTIA.—Messrs Thomas Christy & Co., London, have sent us a specimen of their patent Christia sheeting, said to be a perfect substitute for oiled silk, guttapercha tissue, and other waterproof coverings. It consists of a thin, pliable, and soft substance, very light, and in colour resembling guttapercha, though without its stickiness. It has some appearance of being made from a thin parchment paper subsequently oiled. We have tried it carefully, but find it is not impervious to moisture, for pieces of lint soaked in boracic or other lotion and then widely covered with Christia, employed in dressing a wound, are quite dry in course of twenty-four hours. It cannot, therefore, replace either guttapercha or oiled silk, but may possibly be of use in cases where a slight degree of porosity is no disadvantage.

SALVO PETROLIA.—This is a semi-solid paraffin of the consistence of vaseline, and, indeed, closely similar to it. It is sent out in four qualities—three of various shades of yellow, and one white. It is made by the Dee Oil Company, near Chester.

UNGUENTUM DERMOLÆ.—Under this name Messrs Duncan, Flockhart, & Co., have had made a soft, smooth ointment, composed mainly of lanoline, but containing oxide of zinc and a small quantity of carbolic acid. It is thus mildly antiseptic and antipruritic. The carbolic acid may be replaced by salicylic or

boracic acids if such an alteration be thought desirable. We have found it on trial non-irritating and soothing to the skin, and it will prove of value in mild cases of eczema or where emollient applications are indicated.

NEW NOVEL. — *The Bell of St Paul's*, by Walter Besant, has rapidly attained a large and deserved popularity. In it the author says, "This is an Age of Apollinaris Water,"—a very true remark, seeing that no less than fifteen million eight hundred and twenty-two thousand bottles were filled at the Apollinaris spring in the year 1889!

OBITUARY.

BRIGADE-SURGEON JAMES MACDONALD HOUSTON.

BRIGADE-SURGEON JAMES MACDONALD HOUSTON, whose death occurred on Sunday, 20th April, at 8 Coates Gardens, Edinburgh, had a long, useful, and honourable career in India, in the course of which he held several important medical appointments. He was the second son of the late Mr James Houston, Tullochgriban, Strathspey, and was educated at Elgin and Aberdeen. He was an M.D. of King's College, Aberdeen, and a member of the Royal College of Surgeons of England. He entered the Indian Medical Service in 1858, and was posted to the Madras Presidency. After a few years' service in the Military Department he was appointed to the medical charge of the irrigation works on the Upper Godavery, where his duties were of a very arduous nature, and involved much exposure in a highly malarious climate. His services during a formidable outbreak of cholera in this district were noticed with approval by the Governor-General. He never spared himself, with the result that after five or six years his health completely broke down, and he had to come home. On his return to India he was for some years civil surgeon at Tanjore, which station he left on being selected to hold the important appointment of Durbar Physician to His Highness the Maharajah of Travancore. He was not only Physician to His Highness, but was also chief of the entire medical department of the State. The hospitals at the capital were directly under his charge, and those in the several districts were administered and inspected by him. His strict impartiality and high character secured for him the respect of his numerous subordinates, while his ever ready kindness to them, and to the small European community whose medical attendant he also was, made him greatly beloved. His purse was freely opened to those who needed assistance. He had a high conception of the work and position of a medical man, and had the honour of his profession always at heart. He retired from the service in 1888, after having held the Travancore appointment for about fifteen years. His wife, who was a daughter of the late Surgeon-General Eyre, predeceased him, leaving one child—a son, who is now an officer in the Royal Engineers, and is at present serving in the Afghan frontier.

ERYTHROXYLON COCA:

ITS VALUE AS A MEDICAMENT.

BY MARC LAFFONT, M.D., PARIS,

PROFESSOR OF PHYSIOLOGY AT THE FACULTY OF LILLE, FRANCE.

DURING the last few years the therapeutic use of coca has been so greatly extended that it may be interesting and useful as a *résumé* to enumerate its many applications.

It is well remembered how, in former years, the virtues of the salts of quinine were held to entirely supersede those of cinchona; in like manner this inevitable error has arisen with coca, its alkaloid cocaine only having been considered by many. As to the comparison which many of our *confrères* make between the preparations of cocaine and of coca, we do not fear to state that, however sound may be the theory of preferring to administer certain alkaloids to administering a preparation of a plant of which the virtues vary according to where and how it was gathered, the place of its cultivation, its quality, and the constitution and nature of the preparation—we repeat, we do not fear to state that in the majority of cases, as the alkaloid does not contain all the active principles of the plant, it cannot be preferred, except in special cases where the particular action of the alkaloid alone is desired. The fact is well established that the salts of quinine cannot replace the extract, the wine, or the powder of cinchona, the tonic principles and the essential oils of which have, without doubt, shown a special therapeutic value; and I need merely cite the indisputable success obtained by Professor Trousseau with the powder of cinchona in checking malarial fevers which had resisted even the largest doses of sulphate of quinine. More especially cocaine cannot replace all the active principles and the essential oils of the leaf of *Erythroxylon coca*, as has been proved from the time of the earliest discovery and use of this plant.

In 1887 at the Institute of France (Académie des Sciences), and in 1888 at the Académie de Médecine, I demonstrated that coca, by virtue of its active principles, had three very distinct separate actions.¹

1. As an anæsthetic, acting upon the protoplasm of the terminations of the sensory nerves, preventing the transmission of painful sensations to the centres or the unconscious sensibility of Bichat.

2. As a nerve tonic, producing functional excitement of the cerebral and spinal nerve centres, and increasing the intellectual and muscular activity.

3. As a tonic to the unstriated muscular fibres of the stomach, the intestines, and the bladder, producing functional excitement of the constrictor action of the great sympathetic nerve, with consequent functional exaltation of all the smooth muscular fibres or muscles of organic life.

The dissatisfaction produced and the complaints which are made that the plant is wanting in uniformity of quality, and is unreliable in producing the desired effects, are due to the varying quality of the preparation. An essential requisite to produce reliable uniform preparations of coca is a thorough knowledge of the origin of the leaf, its nature and its quality. Careful study and researches made by Mariani for many years as to the origin, the nature, the species, the culture of the different leaves of coca, and the care which he gives to his preparations, have been the means of

¹ Published in the "Proceedings" of the Academy.

ERYTHROXYLON COCA—*Continued.*

placing at our disposal products uniform in quality and unvarying in their effects in those varied cases where their internal administration is called for. I will cite but a few names among those of my many *confrères* whose recorded experience with the Mariani coca preparations coincides with my own, which I am about to set forth, based upon continued observation in hospital and private practice.

The first and main application of the "Vin Mariani" is as a general tonic for persons either physically or mentally overworked (Brown-Séquard, Germain Sée, Dujardin-Beaumetz, Ball, Bouchut, A. M'Lane Hamilton, A. E. Macdonald, A. L. Ranney, L. C. Gray, L. Weber, Carlos F. Macdonald, J. Leonard Corning, H. M. Lyman, I. N. Danforth, P. S. Conner, J. K. Banduy, C. H. Hughes); in convalescence after lingering, wasting diseases, where nourishment is needed, and where it would be dangerous to overcharge the stomach; with all whose recovery is tardy from wasting or constitutional weakness; in chlorosis, anæmia, and rachitis (C. H. Robin, Durand Fardel, Gubler, De Piétra-Santa, Fordyce Barker, Isaac E. Taylor, A. L. Loomis, W. T. Lusk, F. P. Foster, C. C. Lee, J. J. Henna, L. L. M'Arthur).

It is further used in diseases more specially referable to atony of the smooth muscular fibres, among which we class atony of the stomach. In dyspepsia, in those very common cases where this organ has become weak and torpid, is distended, and fails to secrete gastric juice, coca is well indicated (De Saint-Germain, Cottin, Dieulafoy, Salemi, Companyo, Rabuteau, A. J. C. Skene, P. A. Morrow, T. C. Giroux, Hunter M'Guire, E. R. Palmer, O. O. Burgess, J. R. Leaming, Daniel Lewis, T. E. Satterthwaite, W. H. Pancoast, D. F. Woods, J. N. Hyde, L. G. N. Denslow).

It is also serviceable in weakness of the vocal cords, in the case of ministers, singers, actors, teachers, and orators (Ch. Fanvel, Morell Mackenzie, Lennox Browne, Botkine, Cozzolino, Zaverthal, Poyet, Coupard, Fränkel, Marius Odin, Labus, Massei, Louis Elsberg, R. P. Lincoln, Beverley Robinson, W. C. Jarvis, H. H. Curtis, C. C. Rice, C. E. Sajous, E. Fletcher Ingals, H. Schweig, T. R. French).

It is, moreover, of value in weakness of the vascular organs, with the anæmic, the plethoric, where, principally on the face, the small blood-vessels show enlargement or venous arborescence which points to a similar state in the vessels of the nervous centres. The same vascular weakness is also observed with the varicose, in whom coca is indicated; likewise with the paraplegic, with whom it regulates the circulation of the nervous centres (Bernard, Bétancèz, Iandowski, Casenave-Dalaroche, Gazeau, Rabuteau, V. P. Gibney, Robert Newman, E. B. Bronson, J. E. Janvrin, B. M'E. Emmet, W. O. Moore, W. J. Morton, D. W. Yandell, J. H. Etheridge).

It may be also as a regulator of the nervous centres that the infusion of coca known as Vin Mariani produces such marvellous results in mountain-sickness, in sea-sickness, and in the vomiting of pregnancy. It is well remembered how this preparation sustained the illustrious General Grant during several months (Cuffer, Letellier, Dérécagaix, Trossat, Bouloumie, Dechambre, Fordyce Barker, G. F. Shradly, J. H. Douglas, H. T. Hanks, G. R. Fowler, J. M. Keating).

From a psychological point of few, and from mental pathology, it may be stated that coca is the only drug which successfully combats melancholia, low spirits, and all forms of depression of the nervous system, upon which it acts "like fulminate," to use the felicitous expression of Professor Gubler.

Part First.

ORIGINAL COMMUNICATIONS.

I.—ON THE SENILE HEART; ITS SYMPTOMS, SEQUELÆ, AND TREATMENT.

By GEORGE W. BALFOUR, M.D., LL.D., Physician to Chalmers's Hospital.

(Continued from page 905.)

In my last paper (p. 889, *Ed. Med. Jour.*, April 1890) I pointed out that the altered relation between the pulmonary artery and the aorta, always present after middle life, is the cause of an increasing venosity of the blood and of a remora of the venous circulation.

The blood does not get rid of its carbonic acid so completely as formerly, neither does it circulate at such a high pressure rate through either the pulmonic or systemic circulation. Hence all the vital functions are less perfectly fulfilled than formerly.

It is not so much that the transformation of energy, which happens when any kind of work takes place within the body, is perceptibly trammelled or restrained—though that, too, comes in time—as that the effete products of this transformation are no longer removed from the body with the same rapidity and completeness as formerly. In this connexion we must remember that it is not merely muscular movement, or outward speech, but every heart-beat, every thought, nay, every act evincing life, however occult it may be, that occasions, or rather requires for its manifestation this transformation of potential into kinetic energy, and helps to flood the blood with waste material; and thus we can readily understand how any interference with the purity and perfection of the blood, as a chemical agent, must in time clog and trammel every vital act. Add to this that civilisation, with its many luxurious appliances which aid and abet the indolence that naturally grows upon man as he gets older, does away largely with the need for bodily exertion, and thus helps to impede the circulation. For muscular movement is one of the most powerful agents in promoting the circulation of the blood, both through arteries and veins; and it has this further advantage, that it relieves the heart by lowering the intra-arterial blood-pressure,¹ which a sluggish

¹ *Vide The Forces which carry on the Circulation of the Blood*, by Andrew Buchanan, 2nd edition, London, 1875. Muscular movement favouring the passage of the blood through the arterioles, *vide Foster's Physiology*, 5th edition, p. 148. "At the time of contraction more blood flows through the muscle, and this increased flow continues for some little time after the contraction of the muscle has ceased."

arterial circulation tends to keep up. Civilisation has this further disadvantage, that while it does away with the need for exertion, it supplies the results of exertion in only too great a profusion. Civilized man has not first to "catch his hare" before he cooks it; he has plenty of servants to set before him a superfluity of the most tempting foods and drinks, which the habits of society and the anxiety of his friends tempt him, if they do not actually compel him, to partake of four or even five times a day. For in this matter a man's foes are those of his own household, and the worst of them is his wife, for if she cannot get him to eat what she thinks sufficient, she is said to slip calf-foot jelly into his tea.¹ But this does not tend to health, long life, or purity of blood; on the contrary, the blood is thus flooded with a redundancy of nutritive material, far in excess of the requirements of the frame, which can neither be used up in any of its ordinary appropriations, nor fully oxidated in any other way, and so excreted.

Thus, after middle life, the blood is being continually shut off from ever increasing areas throughout the body by withering of the capillaries, it slowly accumulates in the veins, it is more venous in character, less highly oxygenated than formerly, and it is surcharged with effete material. Every function of the body is impeded, every secretion deteriorated, all the organs suffer. The first of the organs to put in evidence of impaired function is the stomach. A sense of fulness and oppression after meals, or it may be pain, acidity, or flatulence indicates that digestion is being imperfectly performed, and that the food, instead of being formed into healthy chyme, largely escapes the action of the feeble or deficient gastric juice, and under the influence of heat and moisture breaks up into various compounds productive of discomfort in the stomach, and of sundry ill effects when absorbed into the blood and carried elsewhere. Next we have the fluttering and irregular heart, caused, as we have seen, by overwork and imperfect nutrition, for a superfluity of food in the stomach by no means always results in even an adequate supply of nutriment in the blood; the disturbed sleep, the irregular bowels, and the lateritious sediment in the urine, which together make up the early indications of what is called the *gouty diathesis*.

These essential characteristics of the gouty diathesis are not all always equally prominent; sometimes one indication may be most loudly complained of, and at another time some other symptom may most strongly impress itself on the attention both of physician and patient, but they are all to be found if carefully inquired for.

¹ The mistaken views of some people are well illustrated by the following quotation:—"A kindly British matron, who spent more hours at table than was good for her, told me that if she did not do so she 'should be a widow in a week,' and that she habitually ate too much to keep her aged husband in countenance."—*Manual of Diet in Health and Disease*, by T. K. Chambers, M.D., London, 1875, p. 217.

There are other manifestations of gout, which, if less universally present, are at least equally characteristic when found. Among these are the *longitudinally ridged finger nails*. A transverse furrow on the nail indicates an illness overlived, its more or less serious character being notified by the depth of the furrow. The thumb-nail being the thickest, such a furrow is most readily detected upon it, and as the thumb-nail takes about six months to grow from matrix to tip, the period elapsed since the illness may be approximately guessed by noting the position of the furrow; but this has nothing to do with gout, and requires a severe illness of some little duration to make a definite mark. Longitudinal ridges on the nails are, on the other hand, always regarded as indicating the gouty diathesis; they are not observed before middle life; they are not always best marked on the thumb-nail, sometimes the whole nail is longitudinally striated; at other times there may be only one strongly marked ridge extending from matrix to tip, and even this may be irregularly interrupted by narrow transverse furrows. These ridges are indications of irregular growth, and as they are only found after middle life, they occur at a period when other gouty manifestations may be expected, but there is no very evident connexion between the two.

It is otherwise with *Heberden's knobs*, which are very distinctly connected with the gouty diathesis, though not always with gout. Heberden himself says,—“What are those little hard knobs, about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top near the joint? They have no connexion with the gout, being found in persons who never had it; they continue for life; and being hardly ever attended with pain, or disposed to become sores, are rather unsightly than inconvenient, though they must be some little hindrance to the free use of the fingers.”¹ These knobs are common enough, and there are few physicians of any experience who have not had an opportunity of watching their development. They sometimes follow an acute inflammatory affection of the fingers, with many of the characteristics of a fit of true gout; at other times they are of slow and gradual growth, accompanied by the ordinary phenomena of gouty dyspepsia, but attended by no more remarkable local phenomena than occasional twinges of pain about the joints, and an occasional sense of fulness and stiffness of the fingers. For diagnosis, however, and especially for treatment, we have to distinguish between Heberden's *knobs* and Haygarth's *nodosities*.² The *knobs* are extra-vascular deposits around or within the joints; beginning like small peas they sometimes attain a considerable size, and produce great and irregular deformity of the hands; they have long been known

¹ *Commentaries on the History and Cure of Diseases*, by William Heberden, London, 1803, 2nd edition, p. 148.

² *A Clinical History of Diseases—Part 2, Of the Nodosity of the Joints*, by John Haygarth. Bath, 1805.

as chalkstones, and are really composed of urate of soda. The *nodosities*, on the other hand, are associated with rheumatoid arthritis, and not with gout; they are really "exostotic growths, from the margins of the articular surfaces as well as from the periosteum and bone in the neighbourhood of the diseased joints."¹ These nodosities lead ultimately to ankylosis of the joints, and the deformity of the parts affected, when the hand is affected, is "invariably associated with a characteristic adduction or inclination of all the fingers towards the ulnar side of the hand."² The nodosities are due to disease of the bone, the knobs to impurity of the blood. For nearly 100 years this gouty impurity has been known to be due to the presence of uric acid in the blood, usually as the urate of soda.³ This uric acid is due to defective oxygenation of the effete material in the blood; instead of urea being formed and excreted, the lower compound—uric acid—is formed and retained. At certain parts of the body—about the joints, cartilages, and tendons—the circulation, never very active, gets delayed as age advances. The blood plasma, flooding the organic interspaces, is reabsorbed but slowly; little crystals of urate of soda form in the niches of the tissues, and gradually grow to gouty pearls on the ear, and to Heberden's knobs on the fingers. The synovial oil lubricating the joints and tendons is less perfectly elaborated than formerly, hence the gouty stiffness and pain on movement, aggravated by a certain amount of tension in the organic interspaces which is always present, and worse at times. Uric acid or urate of soda not only forms knobs and pearls, but now and then crystallizes within the sheaths of the tendons, giving rise to a painful grating, usually most marked about the *tendo Achillis*.

Along with the dyspeptic symptoms, and often long before there are any other signs of gout, there is frequently observed "a peculiar *aura* or rapid twittering motion under the skin."⁴ Apparently this is a peculiar *tremor* of the superficial muscles which may affect any part of the body or limbs, and which is closely akin to the *tremor cordis*. This twittering of the superficial muscles is limited to a small area; it comes on suddenly, and like the *tremor cordis* is of short duration, and being quite superficial it is naturally much less alarming. I know of no explanation which can be given

¹ *A Treatise on Rheumatic Gout*, by Robert Adams, M.D., London, 1873, p. 16.

² Adams, *op. cit.*, p. 252.

³ In 1797, Tennant and Wollaston established the fact that tophi are composed of urate of soda; but Charcot rightly says, "the period of positive knowledge dates from Garrod's researches in 1848."⁵ *Vide Clinical Lectures on Senile and Chronic Diseases*, by J. M. Charcot, New Sydenham Society, 1881, p. 127. *Vide also A Treatise on Gout and Rheumatic Gout*, by Alfred Baring Garrod, M.D., London, 1876, 3rd edition.

⁴ *Vide Contributions to Practical Medicine*, by James Begbie, M.D., Edinburgh, 1862, p. 6.

of this singular phenomenon; it is one of those anomalous symptoms occurring after middle life, and in some way or other due to the imperfect nutrition resulting from the gouty habit.

Giddiness not infrequently occurs late in life as an indication of disease of the brain, or of that imperfect nutrition which may either be a cause or a result of disease, and it may last for many days. Earlier in life transient fits of giddiness, especially on stooping, straining at stool, some slight exertion, and sometimes without any very obvious cause, are often found associated with a minor form of imperfect cerebral nutrition due to the gouty habit. All these phenomena are not infrequently found in those who have never had a fit of true gout; they are often regarded, and sometimes rightly, as precursors of a fit, but this is by no means always the case. Many such sufferers pass through even a long life without ever suffering from a fit of true gout, and that even without the use of any special precautions. But each and all of these sufferers carries about with him all the distinctive marks of the gouty diathesis as described, though sometimes one of its signs, and at other times some of the others are more distinctly evident.

As age advances the skin gets wrinkled, harsh, and dry, and when the gouty habit is well developed it gets hot and itchy in parts, especially on the soles of the feet and palms of the hands. Certain skin diseases, such as urticaria, erythema, eczema, and psoriasis, are prone to result from the gouty habit. But, indeed, there is no ailment, no disease, and especially no inflammatory affection, the course of which is not altered and prolonged by the gouty habit. For there is no proposition in pathology better established than that there exist several constitutional affections capable of generating and modifying local inflammatory action; and that local inflammations dependent upon a constitutional cause are subject to very different laws from those which regulate the course of common inflammation.

The primary cause of the gouty habit or diathesis, as well as of all those affections of the heart which I have grouped under the term "senile heart," are entirely identical. It happens thus that there are many conditions which, though they may be aggravated or precipitated by senile dilatation of the heart, may yet be developed without any marked affection of that organ. In speaking, therefore, of the *sequelæ* of the senile heart, I shall not restrict myself to those phenomena only observed when the heart is distinctly dilated, but shall include all those affections, of whatsoever nature, which are due to senile vascular changes, and are observed in their most exquisite form when the heart is enfeebled and has begun to dilate.

Venous thrombosis is liable to occur in two divers conditions: it is found in young spanæmic individuals and in elderly people of the gouty habit, and in both sets of patients it is apt to give rise to complications of various kinds, none of them devoid of danger, and some of them precipitating the end in the most

sudden and unexpected manner. We can scarcely blame the blood alone for the production of these *thrombi*, as were only the blood at fault, the coagulation could scarce fail to be more general in its character and more serious in its results. At the same time, the effect of treatment in assisting the cure, and in warding off and preventing a recurrence of these *thrombi*, indubitably proves that the constitution of the blood plays no unimportant part in their production.

In the early history of thrombosis mere stagnation of the circulation was regarded as the efficient cause; by-and-by it was found that even complete stagnation of the blood was not always followed by coagulation. I myself have seen two cases of aneurism in which the *intima* and *media* were both ruptured, and the adventitia dilated to a somewhat globular non-pulsating tumour, the size of a child's head; both patients recovered, and the blood remained fluid for months, till the last drop was absorbed.¹ Similar observations made by others have conclusively disposed of the idea that even complete stagnation is the essential cause of the formation of thrombi, though it unquestionably aids in their production. Free fibrin-ferment seems always to be present² in the circulating blood, and but for some restraining agent thrombi would be continually forming. An impeded or enfeebled action of the heart is always accompanied by retardation of the circulation. So that as blood effused into the tissues always coagulates, there is always present within the circulation after middle life two elements favourable to thrombosis, which are only prevented from exerting their pernicious influence by the physiological integrity of the vascular wall. But the vascular wall consists of the *adventitia*, the *media*, and the *endothelium*, and as the two former are absent in the smaller arteries and veins, and in the capillaries, it follows that the *endothelium* is the important element in the prevention of thrombosis.³ From this it also follows that whenever we have the formation of thrombi within the living vessels the endothelium is either absent or functionally imperfect. Examples of both of these conditions are only too frequently observed in the gouty habit and especially connected with the senile heart.

In advanced arterial atherosclerosis the endothelium occasionally dies, gets washed off, and permits a calcareous spicula to project into the vascular lumen; upon this the blood coagulates. Should this

¹ Baumgarten has pointed out that when a double ligature is applied with antiseptic precautions, and the wound heals aseptically, the included blood column remains fluid for months, and *may never coagulate*.—*Vide Die sogenannte Organisation des Thrombus*. Leipzig, 1877. And this fact Senftleben has confirmed, *vide Virchow's Archiv*, lxxvii. S. 421; and Cohnheim's *General Pathology*, New Syd. Soc. ed., 1889, vol. i. p. 177.

² Birk, *Das Fibrinferment im lebenden Organismus*. Dorpat, 1880.

³ *Vide Cohnheim, op. cit.*, p. 174. "From this it follows directly that the blood will remain fluid in the vessels *as long as the endothelium is intact and performs its functions normally*." (*Italic in original*.)

happen in a large vessel like the aorta, the coagula do not fill up the arterial lumen, and they are very apt to get washed off in the circulating torrent, only to be arrested in some smaller artery, and there give rise to one or other of the multiform phenomena we know to be connected with the arrest of an embolus, which vary, of course, with the part of the arterial tree where the arrest takes place. In smaller vessels complete occlusion of the vascular lumen may occur, and this gives rise to death of the part to which the vessel blocked is distributed, unless this can be warded off by the establishment of a collateral circulation. Naturally this arrest of the circulation gives rise to phenomena which vary indefinitely with the part affected. Thus we may have gangrene of a digit or a limb, or temporary or permanent paralysis of speech, movement, or sensation, according as it is the artery of a limb, or of some part of the brain that is occluded.

In the gouty habit, and still more when the heart is at all dilated, in certain parts, such as the pockets of the valves in the larger veins, or in the lumen itself of some of the smaller veins where there are no valves, the venous endothelium is apt either to die or to be so enfeebled as to become functionally imperfect, owing to more or less complete stasis of the circulation, and the result of this is the formation of a so-called *marantic* thrombosis at this point. It is astonishing how little change from the normal is required in some people to produce this condition. I am and have been acquainted with several persons, apparently in the most perfect health, in whom the recumbent posture for even a couple of days for a slight catarrh suffices to induce blocking of one or more of the veins of the lower extremities. As a rule no inflammation follows, but the removal of the thrombus takes a week or two, and thus to such patients a trifling catarrh is no slight matter.¹ On the other hand, if the patient is out of health from any cause, the formation of such a thrombosis may involve more serious consequences than merely a few weeks' recumbency. Thus, secondary inflammation of the vein may follow, may extend, and from its very extension may prove serious; or the clot may be invaded by micro-cocci, may soften and give rise to showers of poisonous emboli, producing blood poisoning of a serious character accompanied by the formation of abscesses. Nay, it happens not infrequently, especially in connexion with a dilated senile heart, that thrombi form in some of the smaller veins which, though perfectly aseptic, yet soften and break down into showers of minute emboli, with no other result but a sudden rise of temperature, this putting on the appearance of an ague of irregular type, and prolonging convalescence till blood and heart both have improved in character.

Thrombosis of the gastric veins is followed after middle life with

¹ For these thromboes occasionally the preceding disease gets blamed. Many cases, for instance, have of late been ascribed to influenza.

the same results as happen at an earlier age, there is gastric pain and often severe hæmatemesis, though there is perhaps less often the usual precursory vomiting of a simple character. Should the ulcer be at or near the pylorus the blood may escape into the bowel and give rise to dark coloured stools,—one form of melæna, apt to be neglected and to prove fatal, with the symptoms of a pernicious anæmia.

In very rare cases thrombosis may even affect the cerebral sinuses and give rise to death, often of a very sudden and *foudroyant* character, preceded by a sudden rise of temperature, delirium, coma, and convulsions.

But the rôle of thrombosis is not yet exhausted, for it seems to me that the most reasonable explanation of a fit of *true gout* is a venous thrombosis within the joint affected. This supposition explains all the phenomena of an attack; the dark, turgid veins leading off from the thrombosis, their swollen condition depending upon the backward flow of the blood from the surrounding capillaries and valveless veins into the veins leading off from the occluded area, which continues until an equilibrium is established between the tension in the anæmic area and the communicating vein.¹ The degree of forward movement in the blood about the joint affected is in these circumstances but slight, there is, therefore, a tendency for the red corpuscles to accumulate in the capillaries, hence the red turgescence of the part affected. The remora of the circulation in the tissue interspaces is greatly increased, hence the swelling; and as the serous fluid in such cases is more or less highly charged with uric acid or its salts, these crystallize out of the fluid during this remora, and so originate the gouty deposits around the joints, which grow and increase with each subsequent attack. The turgidity of the veins leading off from the joint affected is never absent, and is sometimes so great as to destroy the function of the valves nearest the part implicated, and if the blood be pressed backwards with the finger towards the capillaries it seldom fails to excite sharp twinges of pain. Thrombosis in the joint interfering with its blood supply is a very easily comprehended cause of pain, when we remember the acute sufferings which precede and accompany senile gangrene and Raynaud's disease. Moreover, while thrombosis of one or more of the smaller veins within the joint is a reasonable and sufficient explanation of all the concomitant phenomena of a fit of gout, it also affords a rational and intelligible explanation of a method of treatment, which, though never prescribed by the faculty, has yet been very successfully adopted by some of the victims of gout, both as a preventative and as a cure—to walk it off. The late well-known Mr Apperley, the Nimrod of former days, used to tell of a friend of his who warded off his fits of gout by walking the soles of his pumps quite through before going home after a good dinner and his *quantum suff.* of wine. Dr Gairdner relates the case of an old gentleman of 85 whose constant

¹ Vide Cohnheim, *op. cit.*, p. 121.

remark, when seized with a fit of gout, both to his friends and his physicians, was "I'll walk it off;" and walk it off he did. While he often quaintly remarked to his friends, "Go to bed with the gout, and it will surely go to bed with you, and be mighty bad company."¹ While Sir W. Temple in his essay on the *Cure of Gout* mentions the case of the Rhinegrave, who was killed before Maestricht in the year 1676, and who when attacked by gout, "used no other method or remedy than, upon the first fit he felt, to go out immediately and walk, whatever the weather was, and as long as he was able to stand, and pressing still most on the foot that threatened him; when he came home he went to a warm bed, and was rubbed very well, and chiefly on the part where the pain began." Many similar cases might be quoted in support of this method of warding off and of treating a fit of gout,—a treatment only possible to be effective on the supposition that the essence of the fit is some obstruction to the circulation, which if taken early can be forced onwards. In the primary stage of stasis this is perfectly possible, it is not so when the thrombosis is complete. The treatment seems, therefore, to be as rational as it has proved successful, and it is so far confirmatory of the theory advanced that a fit of gout is due to a thrombosis within the joint affected.

At times it seems as if the affection of the circulation never got beyond the stage of stasis, or at all events as if the thrombosis were unusually limited in character, as the pain is comparatively slight, the œdema trifling, and there are no turgid veins nor any indication of a backward flow,—all of these being indications either that the block is incomplete, or very trifling in character. I have seen such slight attacks limited to the usual seat of true gout, the junction of the metatarsal bone with the proximal phalanx of the great toe; but these mild attacks are more common in those who have never had a regular attack of true gout, they appear to be premonitory, and more usually affect the heel or the *tendo Achillis*,—positions in which true gout is not so common. In some gouty patients without regular fits, but with occasional attacks of venous thrombosis, these slight attacks are almost inseparable concomitants of the thrombosis in the larger veins, and pass off with them.

This theory of the cause of what is called a fit of gout, while it accords with and explains all the obvious facts connected with an attack, still leaves many of the more recondite phenomena associated with it unexplained. The marked hereditary character of true gout, and the remarkable fact that while all of us acquire the gouty diathesis as age advances, but few of us suffer from attacks of true gout, and the still more remarkable fact, that those most liable to attacks of gouty thrombosis in the larger veins rarely suffer from

¹ *On Gout*, by W. Gairdner, M.D., London, 1849, p. 113. And who amongst us has forgotten the old gentleman in *Sandford and Merton*, who was cured of his gout by being starved and locked up in a room without a seat, the floor being gradually heated till continual movement became a necessity.

attacks of true gout depending upon thrombosis of the smaller articular veins. This, however, seems quite on a par and belongs to a similar category with that other fact, that those who suffer from Heberden's knobs rarely have attacks of true gout,—so rarely that Heberden himself says of these knobs "they have no connexion with gout." Yet these *digitorum nodi* are certainly connected inseparably with the gouty diathesis, of which they are quite as easily recognised and as distinctive signs as enlarged cervical glands and irregular cicatrices are of struma. Moreover, these knobs are little lumps of urate of soda, the same compound which is left around and sometimes within the joint affected by a fit of true gout, a deposit which is increased by each attack,—the only apparent difference between the two being that the knobs grow up insidiously and without pain, or with only slight uneasiness, while gouty deposits are less knobby in character, and are preceded by attacks of a most painful character. Further, these painful attacks affect the toes and lower limbs chiefly; the painless knobs are mostly confined to the fingers and such cartilaginous parts as the lobes of the ear and the nose.

The feeble circulation accompanying the senile heart affects not only the nutrition of every part of the body, but also the secretion of every gland. Special provision is, however, made for maintaining the nutrition of the brain, as of all the arteries of the body the carotids alone retain their pristine diameter, the blood is thus kept at a higher pressure than elsewhere, the blood paths are kept open, and the brain well nourished.¹ When memory fails, therefore, and the intellect gets less acute, this is not due to age alone, but to some other cause. Thus we may have a curable impairment of the brain power, due to impoverishment of the blood from illness or some other temporary cause. Or we may have a permanent deterioration of the memory and intellect due to interference with the nutrition of the brain by atheromatous or syphilitic obliteration or diminution of the calibre of the arteries. This, of course, is incurable, tends to progress, and in its extreme form leads to brain shrinkage and senile dementia, to death beginning at the top, as we say, but this is from disease, and forms no necessary part of death from age. In typical death from age the brain continues to functionate to the last with but little impairment of its pristine powers.

The senile alterations in the vascular system affect the nutrition of every part of the body more or less, and naturally they also affect the secretion of every organ. There are, however, only three organs which have an important connexion with the heart, and which not only influence its condition in various ways, but in their turn have their condition modified by it, and these are the stomach, the liver, and the kidneys.

The secretions of the *gastric glands* are mucus and gastric juice. The gastric juice alone is the important element, and in the

¹ *Vide Die Alteredisposition*, by Dr W. F. Beneke, Marburg, 1879, S. 24 and S. 75; and *Ed. Med. Jour.*, Feb. 1888, p. 682.

enfeebled circulation of age, and still more when the heart is dilated, this is secreted of a poorer quality than in youth and health, it gets diluted with the serous fluid which soaks the inter-spaces of every tissue in the body, and escapes by exosmosis into the ducts of every gland, impairing the quality of every secretion. The gastric juice is thus not only diluted and impaired in quality, but being secreted at a lower pressure, it is probably also defective in quantity. The natural consequences of this are imperfect digestion, some at least of the food escaping the action of the gastric juice. This undigested food putrefies under the influence of heat and moisture, and forms gases which distend the stomach, causing it to press upon the heart and disturb its action by its bulk alone, as well as reflexly by irritation of the terminal branches of the pneumo-gastric nerve. The food may also undergo acid fermentation, acetic and butyric acids being set free, which irritate the gastric mucous membrane, inducing a catarrhal condition with excess of mucus, which hampers the primary digestion in the stomach, and by extending into the duodenum and bile ducts, may even interfere with the free passage of the bile, and without producing jaundice, may still further impede secondary digestion. Nay, this catarrhal condition of the ducts, by preventing the escape of bile through the ductus communis, may even interfere with its secretion, and induce a congested condition of the liver, which not only affects the heart in many ways, but also fills the blood with impurities of various kinds. These various results of a sluggish and imperfect circulation through the stomach must be kept in mind and considered in every case, as they must be remedied in some way or other before the patient can be restored to anything like comfort, and sometimes one method of treatment will be found to be most appropriate, and sometimes another, according to the circumstances of each individual case, while a due consideration of the influence of the primary cause will often guide and enable us to make a judicious selection.

The LIVER, the largest and one of the most important organs in the body, is a great manufactory, the drainage of which we call bile, and are apt to regard as perhaps of more importance than it really is. This bile, which amounts to from half a pint to two pints in the day, along with the pancreatic fluid, not only serves to complete the digestion of the food, but as it is nearly all reabsorbed into the blood, this fluid thus poured forth into the intestine may be regarded as the analogue of the abdominal circulation which exists in certain of the lower animals, such as the Gasteropods. It is of some importance to remember this, as in weakly subjects we can often unload the liver and relieve the heart by a dose of a cholagogue insufficient to purge and so incapable of enfeebling. The two great manufactures of the liver are sugar and urea. The sugar is mainly derived from the starchy elements of the food, is stored as glycogen, and set free as required to be used in stoking the frame and maintaining its normal temperature. Were it not for

this wise provision we should spend half our lives after the ingestion of food as it were in the torrid zone, while during the other half we should be shivering of cold, as if sitting on an iceberg within the arctic circle. The urea is partly derived from the nitrogenous elements of the food, and is excreted by the kidneys. When the liver is working imperfectly, imperfect products, such as leucine and tyrosine, are formed instead of urea, and the presence of these in the urine indicate very serious disturbance of the hepatic function. Urea is a highly oxygenated product, and, as we have seen in the gouty circulation, there is always present an excess of nitrogenous matter and a deficiency of oxygen, so in gouty people urea is deficient in the urine, and its place is occupied by uric acid and its compounds,—uric acid being a lower compound of nitrogen with oxygen than urea. Always in the gouty there is a tendency to enlargement of the liver, partly from the excess of work thrown upon it, and partly from the sluggishness of the circulation; naturally this tendency to hepatic enlargement is increased when the heart is dilated, and in these cases it is often well marked. In a large proportion of such cases, certainly, and probably in all, there is excessive formation of sugar beyond the wants of the system, which is excreted by the kidneys. It is not certainly known whether there is in these cases a real excess of sugar formed, or merely an excess beyond the quantity which can be burned off in the system, mainly from deficient exercise. But as, in spite of the escape of a quantity of sugar unburned, the normal temperature is still maintained, it is probable that in all these cases sugar is formed in real excess. It is of consequence to remember the common occurrence of glycosuria in all gouty patients, especially in such as have dilated hearts and large livers, as it is a condition apt to present itself at odd times and in unexpected ways. For example, a dozen and more years ago, an elderly gentleman presented himself to me with a dilated heart, an enlarged liver, very considerable general dropsy, marked œdema of the lungs, and about one-third of albumen in his urine, which was scanty. He was puffy from general œdema, but seemed to be well nourished, and had no excessive thirst nor any ravenous appetite,—just about the last kind of case where one would expect to find sugar in the urine, yet, on examination, about 15 per cent. of glucose was detected. This old gentleman made a most excellent recovery, his dropsy passed entirely away, his heart and liver both improved, and his glycosuria disappeared never to return. He lived for some years, and was able to carry on his business comfortably, except when he caught cold in travelling, as this invariably broke down his cardiac compensation. I saw him occasionally at long intervals for these relapses, but the glycosuria never returned to any amount, though a trace of sugar was occasionally to be found. He was slightly dieted at first, more for the sake of his heart than his glycosuria, but never afterwards. He died about a couple of years ago from pneumonia.

Another old gentleman of about 68 years of age, on his way to Vichy for gouty symptoms, accompanied by a considerable quantity of uric acid in the urine, was picked up by a London specialist, who detected a considerable amount of sugar in his urine, told him in triumph that his disease had been misunderstood, that he had diabetes and not gout, that he need not go to Vichy, but go home and follow the diet he would prescribe, which, if it did not cure him, would at all events alleviate his symptoms. Unfortunately, neither his medical attendant nor the consultant who had previously advised him had ever tested the urine for sugar,—the scene, therefore, on the patient's return may be left to the imagination of the reader. By-and-by this patient fell into my hands, and having determined that he was not, and had not been losing flesh, that he had hard, tortuous arteries, a failing heart, liver not markedly large, urine loaded with uric acid, and with about 15 per cent. of sugar, specific gravity 1028, I told him quite distinctly that the London specialist had made a mistake, and that he had no more diabetes than I had. No doubt an error had been committed by his former attendants in not ascertaining the presence of sugar, but their opinion so far as it went had been perfectly correct, and the presence of glycosuria was of no material importance in the case. I had naturally to diet the patient for gout, but not for diabetes, which did not exist. In no long time the arterial degeneration made itself felt in the brain; the mind, hitherto strong and dogmatic, began to waver and have fancies which the patient could not distinguish from realities, though quite aware they were different, and yet he was not puzzled by a difference which he fully acknowledged. By-and-by there was a marked declension of bodily vigour, and he died at last of cerebral hæmorrhage some years subsequent to the episode referred to, the glycosuria having persisted to my certain knowledge up to a few months before the patient's death, the analyses of the urine being still in my possession.

Again, about ten years ago a publican happened, in ordinary circumstances one would say had the misfortune, to be in a railway accident, but for him, as we shall see, it was by no means a misfortune. Some months afterwards he was found to be passing sugar, and his ailment was dubbed traumatic diabetes, not by his own medical attendant, but by some of his other medical advisers. He was also supposed to be suffering from some obscure nervous ailments due to spinal concussion. In the course of the action for damages which he raised against the railway company, his diabetes was represented as being of a most serious character, it was sworn to as traumatic diabetes the result of the accident, and six years assigned as the utmost limit of his life. I found this patient to have a dilated heart and a large liver, also, that like many publicans he was a free liver. He was fat and well nourished, and in spite of having passed a considerable quantity of sugar daily for many months certainly, and probably for years, there was not the slightest emaciation,

no thirst, and no ravenous appetite. For these and other reasons I had no difficulty in declaring that this patient had no diabetes, neither traumatic nor idiopathic, that he only had gouty glycosuria, which in itself would have no influence in shortening his days, and which had probably existed for many years before the period of the accident. I am glad to say that this individual still survives to attest the correctness of my opinion, and to enjoy the specially heavy damages awarded him.

These three cases may serve to give an idea of the many varied complications in which it is of importance to remember that glycosuria is not diabetes, and that it is not of uncommon occurrence in all gouty patients, and is specially apt to be found when the heart is dilated and the liver enlarged. Of course, in this matter I refer to true glycosuria, to the presence of sugar in the urine, as revealed not only by the red precipitate of Fehling's, and by the dark amber colour of Trommer's tests, but also by fermentation. This, as I have said, is by no means rare, but mere yellow coloration with Trommer's or Fehling's test is quite a common and every-day occurrence in the urine of those over middle life, though in most of these cases there is no result obtained on applying the fermentation test. Whether this failure of the fermentation test is only apparent, and due to the small quantity of sugar present, or whether the change of colour be due to the presence of glycuronic acid,¹ and not to sugar, I know not, and I only state the fact when I say that where the circulation through the liver is sluggish, and manifestly delayed, we have certainly often, if not always, a considerable amount of sugar in the urine easily detected by the ordinary tests; while when these conditions of the circulation are less well marked, the ordinary tests for sugar give only, but give almost always faint indications which cannot be relied upon, while the fermentation test fails. In these cases of true glycosuria, even where the quantity of sugar is considerable (10 per cent., or over it), there is no emaciation, and there is a possibility of cure. But strict dieting is unnecessary in such cases, as even though the sugar may never disappear, its persistence in the urine seems to do no harm, it seems to be excreted simply because formed in excess of the wants of the system. It seems very probable that many cures of so-called diabetes are simply cures of gouty glycosuria. When simply formed in excess of the bodily requirements appropriate diet has indubitably a powerful effect in limiting the production of sugar, and if this excessive formation be partly due to a sluggish hepatic circulation, while a diminished consumption from deficient exercise may suffice to make even a normal production redundant, it is evident that

¹ *Vide* "On certain Substances found in the Urine, which reduce the Oxide of Copper upon Boiling in the presence of an Alkali," by Herbert H. Ashdown, M.D.—*Proceedings of the Royal Society of Edinburgh*, 1889-90, vol. xvii. p. 58. Said to be derived from putrefactive changes of proteids in the intestine, and if so, probably connected with the gouty dyspepsia.

careful treatment may in such cases be crowned with perfect success.

The KIDNEYS are, however, the organs most intimately connected with the heart. On the one hand affections of the heart do most materially influence the structure and functions of the kidneys, and, on the other hand, affections of the kidneys may seriously affect the structure and functions of the heart. And I have used the word *may* advisedly, for while I admit the possibility of the reaction therein adverted to, and can understand its rationale, I can most unhesitatingly declare that I have never to my knowledge seen a single case in which disease of the kidneys had any causal connexion with an affection of the heart of any kind, but the reverse many a time. I suppose that simple hypertrophy is the form of cardiac affection usually credited to preceding disease of the kidneys. I have seen many cases of simple hypertrophy of the heart, but never one that I can recall which had been preceded by kidney disease of any kind whatever. On the other hand, I have had an opportunity of watching for years several cases of simple hypertrophy of the heart, in which kidney disease was ultimately developed as the result of cardiac failure. These were all men of robust frames, and some of large mould, with hard, tortuous arteries early developed, and at least full, if not what one would call free livers.

Having been nearly all my professional life acquainted with a certain dignitary of a northern university, and having been for many years his occasional medical adviser, I was well aware that he had hard and tortuous arteries and a hypertrophied heart, and had my eyes fully open to all the contingencies likely to happen in such a case. For years, however, the patient went on the even tenor of his way. At last, after passing his grand climacteric, his heart gave way, it became dilated with a systolic mitral bruit. But not till long after this, not till only about four months before the patient's death, was any albumen to be detected in the urine. This albumen usually amounted to about one-third, but varied from time to time, and, so far as I know, was never afterwards absent till the end. The albumen came with failing health and a broken down constitution, the outward frame looked vigorous still, but the organization was giving way at all points, and revealing its failure in many ways. To an ordinary observer it seemed as if he would be at once restored to his pristine vigour, if the incubus of an unknown disease could be removed: to the intelligent eye of the physician there was but one possible ending, though it might come in various ways, and might be warded off for an uncertain period by careful and judicious treatment. The hard, tortuous arteries, the dilated heart, and the albuminous urine, told an unmistakable tale to the discerning mind, and in no long time this was emphasized by a sudden attack of blindness of one eye, due to hæmorrhage into the retina from rupture of a

vessel, as ascertained on examination by one of our ablest oculists. The patient had also almost constant headache, a feeling of depression, and a sensation of failure, pathetically revealed by a longing for a quiet life and for release from the burden of his official duties,—a quietness which he scorned and a burden which was unfelt when in the plenitude of health, for in those days there were but few who could compare with him in fulness of life and energy. Part of this depression was doubtless constitutional, as he had suffered from it at an earlier period of life, but there was at this time every reason to believe that this constitutional depression was intensified by the imperfect nutrition of his brain, due to arterial atheroma. Of this the hard, external arteries, but especially the retinal hæmorrhage, must be accepted as a sufficient exponent.

Already the outworks were sapped, and the enemy was marching along the pathway of the arteries towards three breaches in the enceinte of the citadel of life; the dilated heart, the contracting kidneys, and the shrinking brain, which would be the first to be stormed and to yield it was impossible to foretell.

There was nothing to be done but to send him to a milder climate for the winter, in the hope that his life might be prolonged. A full and particular account of his illness and present condition followed him to the south, and the programme indicated was carried out. About a month after I last saw him the patient died somewhat suddenly, but whether from apoplexy or uræmic coma I am not certainly aware.

This case was in every respect one of intense interest. What I specially desire to point out at present is, that in it there is an absolute certainty that the heart affection long preceded that of the kidneys, and that the latter only became recognisably affected a few months before the death of the patient.

The following case also inculcates the same lesson: that even where hypertrophy is the predominant lesion of the heart, the affection of the kidneys is usually, or shall I say always secondary. About two years ago there died an old gentleman of 68, with whom I had been acquainted for forty years, and had been his medical attendant for a great part of that time. He was a man of robust frame, who lived well, and enjoyed excellent health up to a year or two before his death. His arteries early became large, hard, and tortuous, and for about ten years before his death he was known to have a large hypertrophied heart, which had come on insidiously, presenting no symptoms. About five years before his death his heart began to falter and become irregular, it had commenced to dilate, but though this was never altogether remedied it did not increase. All this time I had kept my eye upon his kidneys, but they never showed any signs of imperfection till about two years before his death, when a small amount of albumen, little more than a trace, was detected. Though sometimes absent, this albumen continued to be occasionally detectable during

all the remainder of the patient's life. About this time also the patient commenced to suffer from defective memory, and to show in various ways a loss of brain power, of which he was himself painfully conscious. As in the former case, therefore, the enemy had already seized the outworks, and was marching along the arteries upon the citadel of life, in which the same three breaches had been made. In this case, however, there could be little doubt from the symptoms that the brain had suffered most, and it seemed probable that the breaking of the "golden bowl" would have closed the last sad scene of a most useful and energetic life. As it happened, this was not the case, for long this patient had suffered from a contracted liver without any marked symptoms beyond a tendency to constipation; now, however, jaundice set in, and after a few months of suffering intestinal hæmorrhage suddenly closed the scene.

So-called idiopathic enlargement of the heart is not a very uncommon occurrence in this part of the world, but it is more unusual to be able to trace its downward course and map out distinctly its relation to kidney disease. For as these cases clearly show, confirmed as it is by my own experience of many others, the kidneys in such cases are affected secondarily, never until the heart gets permanently dilated, and then always proportionately to the cardiac debility. Hardly a tyro in medicine but knows and can realize how, when a heart gets dilated and the venous circulation delayed, the kidneys become congested and albumen appears in the urine, and the amount of albumen is found to vary with the state of the circulation. Permanent congestion of the kidneys of this character always, however, originates more or less fibrosis of the cortex, and as the newly formed fibrous tissue contracts, the cortical tissue gets destroyed, and then we get one form of the contracting kidney, the true gouty kidney. In this variety the heart is always hypertrophied and also dilated, the kidney affection being secondary. If we have had the opportunity of tracing the disease from the commencement we know it to have been so; should we only have picked up the case towards its end, we find *post-mortem* that the heart affection is evidently in advance of that of the kidneys, as I have had very many opportunities of observing. The kidneys do not become affected in cases of this character until sometime after the heart, which is always somewhat dilated. We often find a dilated heart without albuminous urine, but albumen is sure to follow, and we are bound to watch for it. Indeed, towards the end of the case the heart sometimes seems to become much the least serious part of the complaint,—it still remains dilated, but it beats with considerable force and perfect regularity, yet the albumen in the urine increases in amount, and the whole system becomes infiltrated with the soakage of a general dropsy. Sometimes this seems to arise from a secondary catarrh of the kidneys; at other times it seems to be

only due to the deteriorating influence of a persistent congestion. Serious cedema of the lungs sets in, and in spite of treatment may prove fatal, or the fatal declension may only follow various attempts to relieve the system by tapping and draining. In regard to this we must not forget that though dropsy of the cardiac tissue is an unknown disease, there must in all these cases be a remora of the venous circulation even of the heart, and therefore a certain delay in the cardiac veins and intervacular spaces; and the result of this and of other elements of the case, such as the hardening of the coronaries, etc., is to promote a fibro-fatty degeneration of the cardiac muscular fibre. But fibro-fattily degenerated muscular tissue, though it may give a fair thump to the finger or the end of the stethoscope, when propelled against them by the remanent healthy muscular fibre, is of little use in aiding the onward flow of the blood. Hence with a regular and fairly forcible apex beat the dropsy still accumulates; other causes may assist, but this is the only irremediable one, and when failure of remedies to give relief forces upon us the unwelcome surmise that it is with such a condition we have to do, then indeed we recognise that "the pitcher is broken at the fountain," and that in no long time for this patient "the mourners will go about the street."

The idiopathic hypertrophy of the heart, to which I have alluded in the preceding paragraphs, is that variety alluded to by Traube and Frëntzel as the hypertrophy of gourmands, due to luxurious overfeeding. No doubt it occurs in those who have always lived fully and well, and who work with their brains rather than their hands, and who are generally of a full habit of body, or at all events of robust build. But this is not enough. Cohnheim has wisely said, "To an accurate comprehension of the manner in which superabundant meals increase the work of the heart, the physiological data at our command are inadequate."¹ This does not seem a very elegant translation, but the meaning at all events is plain,—there is no physiological reason for supposing that a superabundance of food increases materially the work of the heart. The case of the Strassburg geese would, I suppose, supply a fitting rejoinder to any such induction; who ever heard of these geese or of any young porker fattened for the butcher having a hypertrophied heart? Indeed, the hypertrophy of gourmands does not affect the young, however overfed,—it is never found before middle life. I myself have never seen it without atheromatous arteries, but this is not necessary, as after middle life there is always sufficient loss of arterial elasticity to occasion some degree of cardiac strain. In a healthy man who lives moderately the arterial elasticity is longer retained than it is in one who habitually lives too fully, and in him also the heart continues firm and strong, and does not readily yield to any press of work. It is only when some evil influence makes itself felt that the heart dilates, then the muscular wall finds itself flushed

¹ Cohnheim, *op. cit.*, p. 67.

with a larger blood-wave at a higher pressure, and with blood of fairly normal quality, the conditions favourable to increased and more perfect metabolism are at once developed, and considerable hypertrophy speedily follows. The simplest example of this is to be found in the sequence of events succeeding the development of aortic regurgitation, or in the hypertrophy which is so often the result of habitual over-exertion, the first effect of this being dilatation of the left ventricle.¹ And if we inquire into the specific evil influence which promotes the dilatation of the gourmand's heart—for without primary dilatation there is no hypertrophy—we have no difficulty in fixing upon alcohol, which in some form or other is to be found at all our civic feasts or social banquets. It is not without intent that I have used the word gourmand in relation to this form of hypertrophy, for it is not the *gourmet*, the fastidious epicure, who is apt so to suffer, but the man of robust frame who eats largely because he thinks he requires it, and drinks freely at meal times, not necessarily to excess, for the same reason. The alcohol quickens the heart beat and makes it less perfect, it also at first at least contracts the capillaries and raises the blood-pressure. There is greater need for exertion on the part of the heart, and there is less ability for it, *gutta cavat lapidem*, and by frequent repetition of these excesses the ventricle at last dilates. It may be that the overfilled stomach may through the vagus inhibit the heart, and so help to bring about this dilatation, not by producing intermittent action, though that too may happen, but by producing a persistent enfeeblement of the myocardium through depression of the anabolic action of the vagus, and because of that less ability on the part of the myocardium to fully respond when called upon by the katabolic nerve. Gradually the stomach is emptied and the alcohol excreted, the slightly dilated heart again acts more fully and with greater freedom, feeds itself with blood at a slightly higher pressure, and hypertrophies. In the constant tippler, if his heart be affected at all, dilatation rather than hypertrophy prevails; in the gourmand the tendency towards hypertrophy is so strong that the comparatively trifling dilatation is generally overlooked. In the one case the myocardium is continually poisoned and enfeebled; in the other there is an intermediate opportunity of recovery.

In all this I have been speaking only of the true gouty form of the contracting kidney, Bright's kidney, or the kidney of the true Bright's disease, and in it instead of limiting the accompanying heart complaint to 65 per cent., I would extend it to cent. per cent. The sequence of events in these cases is first of all loss of arterial elasticity, slight dilatation of the heart, brought about in many ways, sometimes by gormandising, and followed by well-marked hypertrophy of the myocardium. As age advances, or from any other cause, there is cardiac failure, loss of tone of the myocardium, then the heart dilates, there is venous remora, affecting the kidneys as well as other organs, and

¹ Vide Cohnheim, *op. cit.*, p. 66.

giving rise in them to the development of fibrous tissue in the cortex, which gradually contracts and destroys the secreting tissue. The degree of gravity of the lesion is to be measured by the destruction of the secreting tissue, and this during life can only be gauged by the quantity of solids (salts) excreted. The amount of albumen present may largely depend upon an accidental catarrh of the kidneys, and apart from this it is an indication of the state of the heart rather than that of the kidneys, and may be greatly lessened by proper treatment. Hence a nearly normal quantity of urine of average specific gravity, but containing a considerable amount of albumen, is indicative of heart failure rather than kidney failure, and is not of nearly such serious import as a urine containing but a trace of albumen but having a low specific gravity.

Other forms of contracting kidney following certain acute affections of these organs, follow these acute affections so far as any concomitant heart affection is concerned,—that is, there is no absolute connexion between them; but should the heart from any cause become hypertrophied during the early stages of the disease, it remains so until the health breaks down, when it dilates. In early life there may be hypertrophy without much, if any, dilatation, and in later life more or less dilatation without much, if any, hypertrophy. The state of the heart *post-mortem* depends upon the age of the patient and the stage of the disease, as well as upon certain preliminary conditions. The conditions which appear to give rise to cardiac hypertrophy in kidney disease other than the gouty kidney are: First, The patient must be in fair health, for if broken down in health the blood is not nutritive enough to promote cardiac hypertrophy; hence, as a rule, the cardiac affection occurs early in the course of the kidney disease. Second, Hypertrophy of the myocardium is more readily brought about after than before middle life, because this is then greatly favoured by the changes in the circulatory system which take place at this time. Third, With or without this change in the arterial walls, where kidney disease of an acute character is present there is always more or less soakage of the tissues, and this so increases the diffuse elastic pressure of the vascular environment as to make it a most important source of peripheral resistance to the circulation,¹ and hence in certain conditions a notable excitant of cardiac hypertrophy.

No doubt the composition of the blood itself undergoes a change in such cases, and may thus prove an additional source of resistance of the circulation, and a cause of hypertrophy to the myocardium. But probably by the time the mass of the blood is sufficiently changed for this, it is so altered in other respects as to make dilatation a more likely occurrence than hypertrophy. Moreover, the loss of arterial elasticity, and the increased resistance due

¹ Vide Hamilton's *Pathology*, vol. i. pp. 630 and 694, and Donders' *Physiologie der Menschen*, vol. i. S. 169; also *Ed. Med. Jour.*, September 1889, p. 213.

to the augmented pressure of the peripheral vascular environment, are perfectly sufficient of themselves to account for hypertrophy of the myocardium under favourable conditions, the chief hindrance to it being impoverishment of the blood from the progress of the disease, which causes dilatation to be the more prominent lesion when the heart is affected.

So great is the difficulty of explaining a causal connexion between disease of the kidneys and of the heart, that in the present day there are an increasing number of pathologists who refuse to acknowledge any direct connexion between the two. The accumulated evidence, however, of past years, from Bright to Senator,¹ tends more and more to show the absolute truthfulness

¹ Bright, *Guy's Hospital Reports*, vol. i., 1836, p. 380. He thought the hypertrophy of the heart was due to alteration of the blood, and was secondary to the kidney disease. Christison, *On Granular Degeneration of the Kidneys*, 1840, followed Bright's views. Rayer, *Traité des Maladies des Reins*, 1840, considered that if all the cases were abstracted in which the heart disease preceded that of the kidneys, there would be a very small number indeed left in which the heart affection was secondary to that of the kidneys. George Johnson, *Medico-Chirurgical Transactions*, 1846, regarded kidney and heart affections as both depending on one common cause. He considered it erroneous to suppose that heart affections could give rise to kidney disease, and that kidney disease could only cause disease of the heart in a few cases by producing alteration in the quality of the blood. Reinhardt, *Annalen des Charité-Krankenhauses zu Berlin*, vol. i., 1850, S. 229, thought there could be no doubt that the heart affection always preceded that of the kidney, though connexion between the two was still obscure. It appears from his own experience that in organic disease of the heart, apart from fully developed Bright's disease, serious secondary affections of the kidneys are of common occurrence. Samuel Wilks, *Guy's Hospital Reports*, vol. viii., 1853, saw five cases of combined kidney and heart affection in which the heart affection was undoubtedly primary. Heart affection he found to be a very common complication of kidney disease, in the form of hypertrophy of the left ventricle induced by the strain thrown on it by the rigidity of the arterial system. This arterial rigidity is always present in such cases, even in young patients. But he could not say whether it was a result of Bright's disease, or whether both affections were due to a common cause. Traube, *Gesammelte Beiträge*, 1871, Bd. ii., S. 290 and S. 421, acknowledges that venous congestion following heart disease may give rise to functional as well as structural changes in the kidney, but that these differ from the changes in true Bright in the absence of the fatty degeneration of the epithelium, of the leathery consistence of the parenchyma, the prevalent contraction of the cortical substance, and the coarse granulation of the surface. He regarded the dilatation and hypertrophy of the heart as due to a rise in the intra-arterial blood-pressure, owing first to increased amount of arterial blood from destruction of the Malpighian bodies and consequent hindrance to its passage into the arteries; and, second, to diminution in the amount of urine secreted, and consequent retention of water in the blood. He thought, however, that heart disease might cause an affection of the kidney; the difficulty with him was to account for the primary heart affection. That heart disease and kidney disease were both owing to one common cause seemed to him untenable because open to this objection, that this common cause produced hypertrophy of the one organ and shrivelling of the other. Gull and Sutton, in the *Medico-Chirurgical Transactions*, vol. xxv., 1872, p. 25, propounded their well-known view, that the kidney and heart affections were co-ordinated, and that both depended upon a widespread degeneration of the arterial system, which they called "arterio-capillary

of the doctrine I have laid down as to the direct causal connexion between the contracting kidney and a dilated heart, through the intermediate stages of hypertrophy of the left ventricle and loss of arterial elasticity. The whole subject, however, wants further clearing up, and for this the statistics at present available are worthless. It has been too much forgotten that kidneys contract from various causes, but that a primary heart affection is only sequentially followed by one particular form, the small granular kidney of Bright. According to the period when death occurs, however, we have this kidney not always small, or granular, or at least not markedly so; but we always find the heart affection in advance of the kidney, and the patient either over middle age or with markedly hard and atheromatous arteries. Further, the true sequence of events in these cases is often masked by the secondary occurrence of catarrhal and other affections of the kidney, which have no necessary connexion, causal or otherwise, with the original complaint, but which may seriously and often fatally complicate it. A similar remark may be made as to the heart; this organ is so readily influenced by so many various causes that it, too, is not always found to be exactly as we would have expected it. Thus Senator says, quite rightly as I think, that simple hypertrophy of the heart—that is, as I regard it, hypertrophy prevailing, dilatation slight—is the form of heart affection found in connexion with contracting kidneys, and excentric hypertrophy with other varieties of kidney affection.¹ While Cohnheim considers Senator's theory to be incorrect, for this reason among others, that he had often observed excentric hypertrophy, so great as to amount to complete bucardia, in connexion with contracting kidneys. The answer to this is complete and satisfactory. Bucardia is not a necessary part of the primary complaint, but it is by no means uncommonly found in connexion with contracting kidneys, and is due to secondary causes.

In regard to other varieties of kidney affection, I would say that, so far as my own experience is concerned, there does not seem to be any marked causal connexion between them and affections of the

fibrosis." Bartels, Ziemssen's *Cyclopædia*, vol. xv., is quite decided in his opinion that, apart from the structural alteration in the kidney itself, there is only one organic change almost constantly found in those dying from renal cirrhosis, and that is hypertrophy of the heart (p. 454); that in amyloid degeneration it is extremely rare (seen only once, p. 523), and that chronic parenchymatous inflammation of the kidneys is not usually associated with hypertrophy of the left ventricle of the heart (p. 367). Senator, Virchow's *Archiv*, Bd. 73, S. 1 and 313, says that in contracting kidneys the left ventricle of the heart is found simply hypertrophied, but that in cases of chronic parenchymatous nephritis the heart when affected is always both dilated and hypertrophied. He regards the contracting kidney as the result of the hypertrophied heart, and probably also of some disease of the small arteries of the kidneys, while the excentric hypertrophy of the heart he looks upon as secondary to the kidney affection, and due to the impurity of the blood produced by the renal disease.

¹ Senator, *loc. cit.*

heart. Heart affections are common enough in connexion with inflammatory and degenerative affections of the kidney, but as a rule they have no direct connexion with each other, though a heart affection—especially a feeble or dilated heart—cannot but complicate more or less seriously any affection of the kidneys. It is probably only in exceptional circumstances that intervacular soakage of itself gives rise to any cardiac affection, though it is evident enough that it is quite capable of modifying existing affections of that organ, and of modifying them variously according to circumstances. Thus a well-fed heart may become bucardiac, and in an ill-fed one the dilatation may be made seriously predominant.

But indeed these points would require a volume, and not a mere article, thoroughly to expiscate them.

(*To be continued.*)

II.—INTRA-UTERINE RICKETS.

By J. W. BALLANTYNE, M.D., F.R.C.P.E., Buchanan Scholar, 1883; Simpson-Gunning Prizeman, 1889; Assistant to the Professor of Midwifery, University of Edinburgh; Physician for Diseases of Children, Cowgate Dispensary, Edinburgh.

(*Read before the Edinburgh Obstetrical Society, 11th December 1889.*)

SCHWARZ has shown (*Jahrb. für Kinderheilk.*, Bd. xxvii., Hft. 4) that slight rachitic changes are far from uncommon in new-born infants whose mothers have been placed under bad hygienic conditions during pregnancy, for out of 500 infants born at the Second Vienna Obstetric Clinic 80·6 per cent. showed the typical rachitic change in the skull, in the ribs, or in both the skull and the ribs. The observations of Kassowitz give results in accordance with the above statement. The example of intra-uterine rickets which I venture to bring before the notice of this Society shows, however, much more advanced and serious rachitic changes than are found in the above-mentioned cases of slight rachitis. In this case the rachitic process has advanced to a stage at which I do not believe it ever arrives in extra-uterine life, and so great is the resulting deformity that the child has an almost monstrous appearance. The characters presented by this infant are also different from those seen in the cases of so-called foetal rickets or foetal cretinism.

For permission to dissect the foetus, which I shall now proceed to describe, I am indebted to Sir William Turner, to whom the specimen was sent. Unfortunately, no note accompanied the specimen, and I have been unable to discover even the name of the sender, therefore no clinical history of the mother or her confinement is available. This is a circumstance much to be regretted, for reasons which are self-evident.

Before making a dissection of the foetus, I asked Mr Cathie to make two water-colour sketches of the specimen. These drawings represent in a very faithful manner the peculiar and characteristic

features which the specimen showed. The limbs are curiously contorted, and nodular swellings mark the position of the shoulder, elbow, wrist, hip, knee, and ankle joints. In the position of the coccyx is a tail-like projection. The fingers and toes are long, and are widely separated from each other. The head appears to be large in comparison with the body, the upper jaw is somewhat prominent, and the occipital region is flattened. There is on the face a peculiar senile look, quite foreign to the expression of the healthy new-born infant. The umbilical cord is seen to be attached to the abdomen, and shows no signs of having been tied. The attitude in which the foetus lies is characteristic, and is most probably approximately that which it occupied in utero. The head is flexed upon the sternum, the arms are folded upon the chest, and the legs are flexed and curiously interlocked. The thorax is expanded at its base, and is narrow from side to side anteriorly. These are the appearances shown in the first drawing (Fig. 1); the second (Fig. 2) shows the peculiar deformities of the legs and the curious appearance of the external genitals and perineum. The swollen knee and ankle joints are very evident, as is also the projection in the neighbourhood of the coccyx. A penis is present, but the scrotum is quite collapsed, and does not appear as if it contained testicles. A median raphe stretches from the root of the penis to the anus, and the anal aperture is situated immediately in front of the coccygeal projection.

Such were the outstanding features which this specimen presented to the eye; the following additional characters became evident on closer examination. There was immobility of the limbs at the various joints, and the right thigh was found on palpation to be fractured. So firmly fixed were the joints that an attempt to move the arm at the shoulder resulted in the separation of the shaft of the humerus from the head of the bone. It was also found that the vertebral column was rigidly fixed in a position of flexion. The lower end of the sternum was tilted sharply forwards, and through the skin the extremely contorted form of the scapulæ could be distinctly felt. The total length of the foetus was 47 cms. ($18\frac{1}{2}$ inches), and the length of the head and trunk from the vertex to the tip of the coccygeal projection was 35.6 cms. (14 inches). The circumference of the body at the level of the ensiform cartilage was 23 cms, and at the level of the umbilicus 21.7 cms.

The head measurements were as follow:—

Diameter occipito-mentalis, . . .	= 11.5 cms.
Diameter occipito-frontalis, . . .	= 10.2 "
Diameter suboccipito-bregmatica, . . .	= 8.9 "
Diameter biparietalis, . . .	= 8.9 "
Diameter bitemporalis, . . .	= 7.7 "

The anterior fontanelle measured 5.1 cms. in an antero-posterior, and 3.8 cms. in a transverse direction. These measurements show that the head, far from being hydrocephalic, is rather below the



FIG 1

FIG 2



FIG 3



average size as compared with the heads of healthy new-born infants of the same length as this foetus. The anterior fontanelle is, however, much larger than is normal, and the sutures are wider than they are in healthy infants. The parietal eminences and the occipital protuberance were well marked, and the whole head had, as viewed from above, a somewhat polygonal outline.

The thorax had an antero-posterior diameter of 5.1 ctms. superiorly, of 7.6 ctms. inferiorly, and of 6.4 ctms. at the level of the middle of the sternum. The transverse diameter of the chest at the level of the fifth rib was 5.1 ctms. The swollen condition of the anterior ends of the ribs could be felt through the skin.

The measurements of the limbs were as follow:—

Circumference of the arm above the elbow,	= 6.0 ctms.
Circumference of the arm at the elbow, .	= 8.7 "
Circumference of the arm below the elbow,	= 6.0 "
Circumference of the leg below the knee,	= 5.1 "
Circumference of the leg at the knee, .	= 11.0 "

The circumference of the leg at the knee was, therefore, more than twice that below the knee; and in the case of the arm the circumference at the elbow was half as great again as the measurement below or above that joint. These figures demonstrate very clearly the enormously swollen condition of the joints of the limbs.

The abdomen of the foetus was opened, and there was found in the peritoneal cavity a small quantity of serous fluid; but there was no glueing together of the intestines or other sign of inflammation. The testicles, which had not descended into the scrotum, were found lying, one on each side, in front of the psoas muscle a little above the plane of the pelvic brim. The liver, spleen, and kidneys had a normal appearance, and the stomach was empty and collapsed. In the thorax the lungs were found in an unexpanded condition lying posteriorly to the heart, and in the latter organ the foramen ovale was patent, as was also the ductus arteriosus. It may, therefore, be concluded that respiration was never established. Subcutaneous adipose tissue was found all over the body, but it was present in smaller amount than in a healthy full-time infant. The absence of the testicles from the scrotum served to explain the peculiar appearance of the perineal region.

I shall now describe with some fulness the appearances presented by the bones in this foetus, for it was in the skeleton that the most remarkable characters were visible.

The Cranium.—Whilst all the fontanelles of the head, as well as the coronal, sagittal, frontal, and lambdoidal sutures were wider than normal, yet the ossification of the cranial bones was irregular rather than defective; and indeed the bones of the base of the cranium and of the face showed a more advanced stage of ossification than they do in the healthy infant at birth. The parietal

bosses were large and prominent, but the margins of the parietal bones were thin, flexible, and comb-like. The occipital bone was curiously deformed. It had the shape of a hook, the occipitals being bent at a sharp angle upon the supra-occiput, and the basi-occiput being acutely flexed upon the exoccipital portions of the bone. The margins of the supra-occiput were thin and flexible, and this part of the bone was flat, a fact which explained the flattened appearance of the back of the head already described. There was no trace of cartilage between the supra-occiput and the exoccipitals, and the ossification of the basi- and ex-occipitals was far advanced. Whilst the ossification of the supra-occiput was therefore somewhat defective, the ossific process was far advanced in the basi- and ex-occipital parts of the bones,—the parts, it will be remembered, which pass through a pre-cartilaginous stage before becoming bone. The frontal bone in the neighbourhood of its two eminences was ossified, but the two halves of the bone were separated by an inter-frontal suture, much wider than normal. The orbital plates of the frontal bone were thin and fragile. All the parts of the sphenoid were joined by osseous union, there being no cartilage between the basi- and pre-sphenoid portions of the bone. The rostrum of the sphenoid was of unusually large size, being nearly 2 cms. in length, and was articulated in the usual way with the vomer. The temporal bones, with the exception of the squamous portions, were well ossified, and the tympanic ossicles and annulus tympanicus were as well developed as they are in the new-born healthy infant. The ethmoid bone was normal in appearance. It was found that the two halves of the lower maxilla were well ossified, the condyles being even a little larger than they normally are at birth. The lower jaw contained the usual number of dental germs, and this fact is specially worthy of note, for it is well known from clinical observation that when rickets comes on during infancy there is marked retardation in the eruption of the teeth, and great irregularity in the mode of their appearance. The superior maxillæ, which also contained the usual dental germs, projected forwards in the middle line, and this projection I believe to have been caused by the unusually large size of the rostrum of the sphenoid. This peculiarity of the sphenoidal rostrum may serve to explain the beak shape of the upper jaw described by Fleischman as common in post-natal rachitis. The malars and the other facial bones were well developed and fully ossified.

The Vertebral Column and Pelvis.—The spine, in this case, was curved, and fixedly curved both laterally and antero-posteriorly. There was a convexity to the left side in the cervical and upper dorsal regions, a convexity to the right in the middle dorsal. The lower dorsal portion of the spine was straight, and there was a convexity to the left in the lumbar region. There was also a general anterior concavity of the whole spine. Such fixed curvatures of the spine are entirely absent in the healthy new-born infant. The

sacrum had a marked promontory and was well ossified. The coccyx was entirely cartilaginous, and was of enormous size, a fact which fully accounted for the tail-like projection. It consisted of the usual number of segments (four). The pelvic brim was contracted in its antero-posterior diameter, for the transverse diameter at the brim exceeded the antero-posterior by 5 mms. The iliac fossæ were slightly deeper than in the normal fœtus, and the crests of the ilia and the anterior iliac spines were thick and rounded. The ossification of the iliac bones was not so far advanced as it usually is at birth, whilst that of the ischial and pubic bones was much retarded. The pelvis, therefore, presented characters quite different from those seen in the normal fœtal pelvis in which the antero-posterior diameter at the brim is equal to or greater than the transverse, and in which the iliac fossæ are very shallow. The pelvis, also, does not show all the characteristic features of a typical adult rachitic pelvis, although in some of its characters the resemblance is strong. The anterior wall of the pelvis has an appearance as if it had been compressed and driven backwards by the enormously large upper extremities of the femora.

The Clavicles and Scapulae.—The clavicles were relatively long when compared with the rest of the bones. Their inner ends were enlarged, and the upper surface of the bones showed a marked concavity. The right clavicle was slightly longer than the left. It measured 3 cms.; the left measured 2·8 cms. The chin of the fœtus appeared to rest upon the upper concave surfaces of the clavicles. Both scapulae were remarkably contorted. The infra- and supra-spinous fossæ were very deep, and the normal sub-scapular fossa was replaced by a convexity, upon which, however, was a small concavity corresponding in position to the region of the spine on the external aspect of the bones. The vertebral border of each scapula had a marked S-shape, and the lower angle was twisted forwards. The spine of the scapula had a distinct projection directed downwards about midway between its two extremities. The glenoid cavity was not well ossified.

The Sternum and the Ribs.—The manubrium sterni was very large, and the first three portions of the meso-sternum were well ossified. The ensiform cartilage was large, and its tip was turned forwards. There was a well-marked concavity on the anterior aspect of the sternum, with a corresponding convexity on its posterior surface. It may here be remarked that the heart showed a distinct furrow on its anterior aspect, marking the sharp bend which the sternum showed. A similar condition of the heart was observed by Bland Sutton in cases of rickets in monkeys (Introduction to *General Pathology*, p. 56), and the same author pointed out that marked thinning of the right ventricular wall resulted from the pressure to which it was subjected by the sharply-flexed sternum. In this case the thinning was not well marked, although

the depression upon the anterior aspect of the heart was very evident. The ribs, which were rather slender at their vertebral ends, had distinct swellings at their sternal ends. The swelling on the anterior end of a rib was hollowed out into a little circular cavity from which a thin costal cartilage passed to the sternum. In the first three ribs the angle was very sharp, the 4th, 5th, and 6th ribs had no marked angle, whilst the lower ribs had an angle not nearly so well defined as those of the upper three ribs. These characters of the ribs were seen to correspond to the convexity and concavity of the scapula. The lower margins of the middle ribs were very thin, and were distinctly notched. The anterior ends of the two upper ribs on each side were directed upwards. In the case of the other ribs they were directed downwards. The intercostal spaces were practically non-existent.

The Long Bones of the Limbs.—The long bones had this peculiarity in common, that whilst their ends were enormously large, the intervening shaft was small, short, straight, and nearly quite cylindrical. In the case of the femur there was a trace of the *linea aspera*, but in the case of the other long bones the shafts were quite smooth. The ends of the long bones were composed principally of cartilage greatly hypertrophied, and of softer consistence than is normal in the new-born infant; but at the line where the cartilage stopped and the bone began there was also a great thickening of the bone, so that the large ends of the bones were partly osseous, although principally cartilaginous. There was immobility of the joints and a certain amount of dislocation, especially in the case of the hip, shoulder, and ankle, and both the immobility and dislocation were apparently due to the enormous size of the opposing cartilaginous surfaces. Some of the characters of the individual long bones may be given here. The shaft of the humerus was straight, cylindrical, and short. The two extremities were greatly enlarged. The upper was somewhat round in form; the lower was broader transversely than antero-posteriorly. There were no ossific centres in the epiphyses. Taking the length of the humerus in the normal infant as 6 ctms., it was seen that in this case the bone was shorter than normal. The left humerus measured 4 ctms. in length, the right 3.9 ctms. The upper end of each humerus had a circumference of 7 ctms., whilst the circumference of the shaft was only 2.1 ctms. The radius and ulna were of equal length, each measuring 3.2 ctms., but the radius extended beyond the ulna below, and the ulna passed beyond the radius at the elbow-joint above. The interosseous space was 6 mm. in width. The lower end of the ulna had a marked concavity inwards. The lower end of the radius had a circumference of 3.4 ctms.; the upper end had one of 2.6 ctms., whilst the shaft measured only 1.3 ctms. in circumference. The upper end of the ulna had a circumference of 3.6 ctms., the lower end one of 3.3 ctms., whilst the shaft had one of only 1.4 ctms.

The femur on both sides had a slight concavity inwards of its shaft. There was a distinct projection on the inner surface of the upper end corresponding in position to the trochanter minor, but the trochanter major was lost in the general cartilaginous mass. The head of the femur was no larger than a pea, but was ossified. The femur measured 4·5 ctm. in length, the circumference at the upper end was 7·2 ctm., at the lower end 8·0 ctm., and at the middle of the shaft 2·1 ctm. The tibia was 3·3 ctm. in length, and its shaft had a circumference of 2·1 ctm. The shaft was thicker than that of the fibula, which measured only 1 ctm. in circumference. The tibia was displaced forwards on to the dorsum of the foot. The fibula was situated in a plane posterior to that of the tibia, and more markedly so than in the case of the normal infant. It had a curvature convex to the front and internally, and concave posteriorly and externally. There was a large elliptical interosseous space 9 mms. in breadth. The length of the fibula was 3·1 ctm., and it reached to a level a little below that of the tibia. The patella was large and cartilaginous.

The Hand and Foot.—There was no point of ossification in the carpus, but the shafts of the metacarpal bones were large and well ossified, as were also the first and second but not the terminal phalanges of the digits. The bones of the tarsus were cartilaginous, except the os calcis, which had a large ossific centre. The feet were distinctly clubbed (*talipes varus*). All the metatarsal bones were ossified. The first and second phalanges of all the toes were ossified; the terminal phalanges were cartilaginous. The hallux, like the pollex, had both its phalanges osseous.

Such were the characters of the component parts of the skeleton, and it may be stated in addition that at the time when the foetus came into Sir William Turner's possession there was a transverse fracture of the right femur in the upper third of its shaft. This fracture may have been intra-uterine; but I am more inclined to believe that it was produced at the time of birth or subsequently, for the long bones were very fragile, and during the process of dissection I myself accidentally fractured the other femur and the right humerus. In the case of the last-mentioned bones, however, what really occurred was a separation of the diaphysis from the epiphysis along the line where cartilage and bone met; whilst in the case of the right femur there was a true fracture of the bone itself. Each of the long bones presented on section very similar characters. The medullary canal was large and was surrounded by friable spongy osseous tissue. Near the epiphyses there was a thick layer of hard bone, and the epiphysal extremities of the bone were composed of soft cartilage of an almost gelatinous consistence. The microscopic examination of the tissues and organs of this foetus was not satisfactory, the specimen not being fresh when I made the dissection, but the swollen ends of the long bones and the whole of the coccyx seemed to be made up of large

masses of cartilage cells with little or no intercellular matrix and no deposit of lime salts. The absence of the placenta and membranes of this foetus is a circumstance much to be regretted, as is also the want of any clinical history of the case. The incompleteness of the case is a great misfortune, nevertheless there are several interesting questions suggested by this specimen, to some of which I may now briefly advert.

Spiegelberg (*Lehrb. der Geburt*, 1875, p. 356) and other writers recognise two varieties of intra-uterine rachitis—*fœtal rickets* and *congenital rickets*. Winkler (*Arch. f. Gyn.*, Bd. ii. p. 101) describes two varieties also, but gives to them the names of *micromelic rickets* and *annular rickets*.

Fœtal Rickets.—The class of cases to which the name of fœtal rachitis is given includes the cases of so-called micromelic rickets, and is also allied, in a way which is at present somewhat obscure, with the conditions known as fœtal cretinism and achondroplasy (Parrot). Fœtal rickets is a disease which it is supposed comes on during the earlier months of intra-uterine life, and in which it is believed the rachitic process is fully evolved *in utero*, with the result that at birth the infant is really a cured rachitic. The stage in which the bones are soft is, it is stated, past, and at the time of birth the bones are found hard and eburnated, and the peculiar deformities fixed. An infant with fœtal rickets presents the following characters so constant as to lead Tarnier and Budin (*Traité de l'art des accouchements*, ii. p. 356) to make the statement that all the foetuses seem to have been stereotyped from the same model (v. Fig. 3). The head is large and is often hydrocephalic, but hydrocephalus is not an invariable concomitant condition, neither is the large size of the head always due to the presence of fluid in the ventricles (Depaul, *Arch. de Tocologie*, 1877, pp. 641–50). The thorax has the form of a cone with a wide base, the tip of the ensiform cartilage projects forwards, and the margins of the false ribs are turned outwards. The large size of the abdomen is characteristic, and there may or may not be a concomitant ascites. The small, stunted appearance of the limbs contrasts very markedly with that of the large head and prominent abdomen. Adipose tissue under the skin is very plentiful all over the body, and in the case of the extremities the large quantity of the subcutaneous fat and the lax condition of the skin have thrown the integument into transverse folds, which mask, to a great extent, the normal flexures of the articulations. The foetus looks as if it had on garments too large for it. The shafts of the long bones are composed of hard, compact osseous tissue, are thick, very short, and are bent in abnormal directions. The extremities of the bones are somewhat swollen. There is no actively proliferating zone of cartilage at the junction area between shaft and epiphysis in the case of the long bones, and it is on account of this fact that Parrot has proposed to give to the disease the name of achondroplasy. Fœtal rickets does not, as a

rule, show fractures of the bones. The deformity of the pelvis varies much in amount, it may even be absent entirely, but usually there is some flattening from before backwards. The term micromelic rachitis was suggested by the fact that the limbs are so small. Some authors, however, as Lauro (*Archivio di Patol. Inf.*, 1887), believe that whilst most of the cases described as micromelic rachitis are really cases of true rickets, some of them are due to processes quite distinct from rachitis,—to the interposition, namely, of periosteum between the epiphyseal cartilages and the diaphysis, or to defective cartilage formation. In this relation it must necessarily be remembered that deformities in the skeleton of the fœtus may be due to conditions other than the rachitic. Barlow (Keating's *Cyclopædia of the Diseases of Children*, vol. ii. p. 253) is of opinion that the cases of foetal rickets which have been described are more properly to be regarded as examples of foetal cretinism. He further notes that in a case described by himself there was the curious tribasilar synostosis first described in Virchow's *Pathological Archives*, vol. c. p. 256. This condition consists in the premature union of the basi-occipital, basi-sphenoid, and præ-sphenoid, with the result that there is formed at the base of the cranium one short continuous bone—the os tribasillare. This peculiar state of premature osseous union of the bones of the base of the cranium is not in itself sufficient evidence to show that the cases of foetal rickets are not true rachitis, for in the case which I have just described, and which, as I shall now show, seems to form a connecting link between foetal rickets and congenital rickets, there is also this early union of the præ-sphenoid, basi-sphenoid, and basi-occipital. The condition, also, of the thyroid cannot be adduced as evidence for the statement that foetal rickets is really foetal cretinism, for the reason that in these cases the thyroid is often quite normal. Infants affected with foetal rickets are usually still-born. Infants with foetal rickets present a very considerable superficial resemblance to those rare monstrosities known as phocomely, in which the segments of the limbs are very small and entirely cartilaginous.

It will be seen at once that the specimen which I have described to-night presents features which are, with only one or two exceptions, quite different from the characters seen in cases of foetal rickets. The general appearance of the limbs is quite different, and the changes in the separate bones are also quite distinct in this case as compared with the conditions found in the foetal rachitic fœtuses. There is, however, one feature in common, namely, the prematurely ossified condition of the bones of the base of the cranium. In the case I have described the præ- and basi-sphenoid are firmly joined by osseous union, whilst the basi-sphenoid and the basi-occiput, although not firmly united by bone, yet show no intervening plate of cartilage such as is present in the healthy infant at birth. There is, therefore, a marked resemblance between the condition of the bones at the base of the cranium in

this specimen and the premature tribasilar synostosis described by Virchow, Barlow, and others in cases of foetal rachitis or foetal cretinism. In this one character, therefore, there is a resemblance between this case and the described cases of foetal rachitis; but in its other features the case resembles the second variety of intra-uterine rickets—the congenital form, or, to use Winkler's nomenclature, the annular variety.

Congenital Rachitis.—Under this designation Spiegelberg (*loc. cit.*) and Quisling (*Arch. f. Gyn.*, Bd. ix., Hft. 4 and 5) include those cases in which rachitic symptoms are present in the new-born infant either in an incipient form or else in a stage of full evolution. Many examples of the incipient form of congenital rickets are to be met with in practice, more especially on the Continent of Europe, as has been clearly demonstrated by the observations of Schwarz at Vienna, and of others at Christiania and Paris. In the incipient form the most common manifestations are the head changes known as craniotabes, consisting in enlarged fontanelles and soft and easily impressible cranial bones, and along with the skull changes there are usually associated the changes in the bones of the thorax known as breast rachitis or the rachitic rosary. In 37·6 per cent. of the new-born infants at the Second Vienna Obstetric Clinic Schwarz found the skull and breast changes in a more or less marked degree, whilst in 31 per cent. the ribs alone were diseased, and in 7·2 per cent. there existed only the cranial rachitic changes. It is much more uncommon to find in this incipient form of congenital rachitis the characteristic rickety changes in the limbs. I have met with a few cases of slight rickets in infants in dispensary practice in Edinburgh, and those whose experience has been larger than mine must have met with many such cases. Congenital rachitis in full process of evolution presents, in addition to the changes in the thorax and the craniotabes, marked enlargement of the ends of the long bones, a more deformed condition of the pelvis, and the presence of a varying number of fractures of the bones or of separations of epiphysis from diaphysis. In these cases the resulting deformity is much greater than in incipient rickets, or even in foetal rachitis. The rachitic process is in, or has only just passed through the soft stage, and therefore there is seen in such cases great deformity of all the bones of the skeleton, with the exception of those whose ossification begins very early in intra-uterine life, such as the clavicles, the maxillæ (inferior and superior), the malars, and the greater number of the vertebrae. This form of rickets has been called by Winkler annular, on account of the presence of furrows on the long bones. These furrows have been supposed to represent the sites of intra-uterine fractures which have united whilst the foetus was still in utero; but this explanation of the ridges and furrows on the bones has not been accepted by Charpentier and others, who look upon them as having been produced by defects in the process of calcification. An infant affected with congenital rachitis may live, and the rachitic process may be

continued in extra-uterine life, but in the cases where the osseous lesions are very marked a separate existence comes to be impossible.

The specimen which has formed the subject of this communication is an example of far-advanced and well-marked congenital rachitis. It is a rare occurrence to find in a new-born infant such marked rachitic changes; and it is probable, as Barlow suggests, that intra-uterine rickets runs an accelerated course as compared with post-natal rachitis. The changes at the ends of the long bones are very extensive, and the deformity of the chest walls, of the sternum, scapulæ, pelvis, coccyx, and base of the cranium, is greater than that usually described. The peculiar changes at the base of the cranium lead me to the conclusion that in this case there was in early fetal life true fetal rachitis, which, as it were, became cured and passed into the stage of hard, compact bone production; and that then the rachitic process attacked the long bones and the other parts of the skeleton, and had in them reached the stage of excessive soft cartilage formation when the infant was born. I look upon the case, therefore, as one forming a connecting link between the foetal and congenital forms of intra-uterine rickets. Spiegelberg, Lauro, and others, have shown that the histological characters of intra- and extra-uterine rickets are identical, and this case would seem to support the statement by showing the possibility of the existence in the same foetus of characters peculiar to both foetal and congenital rachitis. The deformities in this infant seem to owe their character very much to the attitude of the foetus in utero, and this is especially the case with the sternum, ribs, scapulæ, and pelvis. Whether the fracture of the right femur took place in utero at birth or after birth it is impossible, from the absence of any clinical history, to say, but the peculiar form of the occiput seems to have been due to intra-uterine fractures which have partially united. The numerous dislocations present in this case are no doubt due to the enormously large size of the opposed articular surfaces.

There are three leading theories as to the pathogenesis of rickets, —firstly, that advanced by Kassowitz, who regards rickets as due to a chronic inflammation beginning in the bone-forming tissues; secondly, that theory which regards deficiency in the supply of the mineral constituents as the cause; and, thirdly, the acid theory, which states that the normally calcified bones are deprived of their lime by some acid, as lactic, present in the circulation. It is not, however, within the scope of this paper to enter into the vexed question of etiology, and the same remark holds with regard to the subject of treatment, which must necessarily be maternal.

The description of the changes in the skeleton in this case formed part of the appendix to the M.D. thesis on "Some Anatomical and Pathological Conditions of the Foetus and New-born Infant in their Relation to Obstetrics," handed in by me to the Edinburgh University last April.

III.—EXFOLIATION OF THE BLADDER IN THE FEMALE.

By F. W. N. HAULTAIN, M.D.

(Read before the Edinburgh Obstetrical Society, 13th November 1889.)

I HAVE been induced to bring before the Society a few remarks upon this somewhat rare condition by a case which came under my observation in the Royal Infirmary, Edinburgh, while I there acted as clinical gynaecological clerk under Dr Halliday Croom.

The facts of the case may be briefly stated as follows:—Mrs M., æt. 26, iv.-para, was admitted into Royal Infirmary on 10th April 1887, complaining of inability to retain her urine, and also of a large painful swelling in the abdomen. Both of these symptoms had troubled her for about a month; the abdominal swelling, however, was rapidly increasing, and her general health was daily becoming weaker. She had not been unwell for four months, and thought that probably she was pregnant.

On examination the patient was found to be suffering from an incarcerated gravid retroposition of the uterus, with retention of urine. Upon passage of the catheter 100 fluid ounces of highly offensive porter-coloured urine were withdrawn, coincidentally with which the abdominal tumour, which reached to 2 inches above the umbilicus, entirely disappeared. With difficulty the misplaced uterus was returned to its normal position, but unhappily the necessary manipulation to accomplish this induced abortion, which took place on the following day.

With the exception of total inability to retain her urine the patient made an uninterrupted recovery, and left the hospital on the 17th May; the only treatment adopted being the regular washing out of the bladder with antiseptic solutions. A week after (25th May) patient was readmitted suffering in a similar though more severe manner, to what she had done on her previous admission. Upon examination the abdominal swelling was found to have reappeared, but projecting from the vulva was felt a membranous mass, which upon inspection proved to be protruding from the urethra, and was evidently causing retention of urine, thereby accounting for the abdominal swelling. A catheter was therefore passed along the side of the mass into the bladder, and 96 fluid ounces of foetid urine withdrawn. Thereafter, by gentle traction upon the mass its removal was effected. The catheter was again passed up to the ring, and could with ease be moved in all directions.

With the exception of being in a somewhat critical condition on the evening of the removal of the mass, the patient made an uninterrupted recovery, and left the hospital on 12th August. At no time, however, was she able to retain her urine. The only treatment adopted was persistent washing out of the bladder with antiseptic solutions.

I again saw her eighteen months after, when she said, she

never felt in better health, her only trouble being her water, which continued to dribble. On examination at this time, her urethra was found to be sufficiently patent to allow of the introduction of the forefinger with ease. The sound now, however, passed only 4 inches into the bladder.

On examination of the exfoliated mass which I have already shown to the Society, it was found to measure 14 by 7½ inches at its broadest diameters, and was from a fifth to an eighth of an inch thick. The outer surface (with the exception of a white, smooth, glistening portion 1½ inches square) was rough, brown, and soft, while the inner was gray and gritty like sandpaper. Microscopically it proved to be a *true* membrane; and at all points three layers could be distinctly recognised, viz.:—1. Crystalline granular; 2, Transverse muscular; 3, Longitudinal muscular. While further, on section of the smooth glistening portion above mentioned, two more layers were superadded, viz.:—(a.) An old connective tissue layer; (b.) A new connective tissue layer.

All the above tissues, with the exception of the new connective tissue layer, were in a state of far advanced degeneration, and were densely infiltrated with granular degenerating cells and broken down hæmorrhagic foci. The bloodvessels also were widely distended with degenerating material. In fact, the membrane was nothing more or less than the entire thickness of the bladder-wall in a state of coagulative or hyaline necrosis, with, at the special portion already mentioned, a piece of the peritoneal covering attached.

This somewhat startling state of affairs is by no means unique, cases having been published in detail by Spencer Wells, Krukenberg, Madurovitz, Schatz, and others, under the misleading title of Exfoliation of the Mucous Membrane of the Bladder. These, I may add, agree in the utmost detail with the appearances of the specimen I have just described, the entire thickness of the wall of the organ having been shed.

A number of other cases have also been recorded, in which the mucosa and submucosa have alone been cast off (Luschka, Aveling, etc.) (See Table.) In all these where microscopic detail has been gone into (this unfortunately but seldom) the description agrees essentially with that of my specimen, in so far as there could be made out dilated engorged bloodvessels, and a degenerated and infiltrated condition of the tissues involved.

In spite, however, of these detailed cases, the greatest variance seems to exist as to the nature of these exfoliated membranes—many (among whom are well-known authors of gynæcological textbooks) describing them as merely croupous exudations or false membranes.

This may be accounted for by the superficial manner in which many exfoliated membranes have been examined, the mucosa and submucosa being so much altered that any appearance of the normal tissue is quite unrecognisable. That a croupous or exuda-

tive inflammation of the bladder with exfoliation of the false membrane does occur, I, of course, do not for a moment deny, but to describe as such the condition I have just detailed is, I consider, erroneous.

If great difference of opinion exists as to the nature of the exfoliated sac, it is eclipsed by the variety of reasons which are assumed as to the etiology of the lesion. Some of these may here be quoted, viz. :—1. Destructive action of the decomposed urine on the bladder wall. 2. Inequality in the elasticity of the various vesical coats causing tearing of the tissues during distension. 3. Direct equable pressure of the retained urine on the bladder-wall interfering with the circulation. 4. Interference with the arterial supply by extraneous pressure. Doubtless any of these assumptions at first sight seem feasible, but unfortunately none of them are applicable to all cases, and therefore are untenable. Thus the first three can in no wise explain the cause in these cases (published by Wells, Boldt, and Mauer) where no retention of urine existed, while the fourth (Pinard and Varnier¹), I hope, I will also be able to prove is short of the mark.

To what, then, must we look as an elucidation of the cause? Obviously, I think (if we accept that the condition is one of necrosis), to interference with the circulation. To arrive at a conclusion on this point one must naturally consider, first, the normal circulation of the bladder, and, second, the cases in which exfoliation has been met with. By this means it will be ascertained if there be anything which can so act upon the circulation of the organ as to cause this lesion.

I will not usurp the time of the Society by detailing the circulation of the bladder, as that must be known to all, but shall broadly state the important fact, that the entire circulation of the organ, arterial and venous, passes to or from the organ through vessels situated at the base and neck—that is, through the fixed portion of the bladder.

With regard to the second point, the cases published occurring in females have all been associated with either of two conditions—retention of urine or labour. The retention of urine, as is shown in the Table, being due, in all cases but one, to incarcerated retro-position of the gravid uterus. That retention of urine alone is sufficient to cause death of the bladder wall has been proved by May of Giessen, by a series of experiments on dogs published in a thesis by him, to which I must refer if details are wanted.²

When the condition is due to retention of urine, I consider it is brought about by the pressure of the retained column of urine upon the veins of the neck of the bladder, preventing the return of blood from the organ, and thus setting up a condition of stasis, with coincident congestion, exosmosis, and diapedesis, and subse-

¹ *Annales de Gynéc. et d'Obstet.*, 1886.

² *Inaugural Dissertation.* Giessen, 1869.

quent coagulation and degeneration of the effused blood. That the pressure is on the veins of the neck and not on the vessels in the wall of the organ (as suggested by May) is borne out by the fact, that everywhere throughout the walls there are found hæmorrhages, engorged vessels, and cellular exudation, quite the reverse from what would be expected if the pressure had been directly applied. Again, the neck being the fixed portion, an external counterpressure is afforded to that of the distension of the retained urine, a condition not met with in other parts of the organ.

That the pressure is sufficient only to primarily constrict the veins, and not the arteries, may safely be assumed:—*First*, from the want of blood-pressure in these vessels; *second*, from the slight resiliency of their walls; and, *third*, from their superficial situation. Further, as in our cases an impacted mass in the pelvis will greatly assist the compression of the vessels, by both pressing directly upon them, and also offering a more marked resistance to the pressure of the retained urine on the bladder neck and base.

That an impacted pelvic mass alone is the primary cause of compression of the vessels, as suggested by Pinard and Varnier, is negated by a case of necrosis of the bladder with gravid retro-position of the uterus which came under my notice. In this case the patient died twelve hours after the urine had been withdrawn, while the retroposed uterus remained *in situ*, yet on microscopical examination of its walls a few of the vessels were found to contain fresh blood, while here and there were absolutely fresh extravasations of blood corpuscles—evidence of a partial return of the circulation.

With regard to those cases met with independent of retention of urine, all have been the result of labour. In these, the cause, though essentially the same (*viz.*, pressure upon the vesical neck), differs in the fact that here not only have we the veins compressed by the advancing fœtus, but the arteries also. By this means the circulation through the organ is entirely arrested, and a state of anæmia of its walls results.

From this temporary anæmia of the organ, such retrogressive changes occur in the vessel walls, that upon the re-establishment of the circulation we have acute exosmosis and diapedesis, this being followed by the usual process of coagulation and degeneration of the exuded lymph, and death of the tissues. In fact, we have simply a more acute form of the same process which occurs on prolonged blockage of the veins. That this is more than theory the experiments of Heubner,¹ Leipzig, have proved. He, recognising the peculiar circulation of the bladder in rabbits, was able, by throwing a ligature round the neck of the organ, to entirely arrest the circulation, with the result, that, on allowing the circulation to proceed after two hours' stoppage, a condition was set up entirely similar to what I have just stated.

¹ *Die experimentellen Diphtherie.*

TABLE OF RECORDED CASES OF EXFOLIATION OF THE VESICAL MUCOUS MEMBRANE IN THE FEMALE.

A.—After Labour.

		DESCRIPTION OF SAC.	RESULT.	REFERENCE.
1	Wells*	Entire coats of bladder and at parts peritoneum	Recovery	<i>Path. Trans.</i> , Lond., 1863, vol. xv., p. 140.
2	Wells	Mucosa, submucosa, and degenerated muscle	Death	<i>Path. Trans.</i> , Lond., 1863, vol. xv., p. 140.
3	Martyn	Mucosa, submucosa, and some muscle	Recovery	<i>Path. Trans.</i> , Lond., 1863, vol. xv., p. 137.
4	Barnes	?	Recovery	<i>Medical Times</i> , 1861, vol. i., p. 186.
5	Ball	Mucosa	Recovery	<i>Edinburgh Medical Journal</i> , 1875.
6	Hewitt	?	Recovery	<i>Obstet. Trans.</i> , Lond., 1863.
7	Aveling	Mucosa	Recovery	<i>Obstet. Trans.</i> , Lond., 1863.
8	Boldt*	Mucosa, submucosa, and muscle	Death	<i>American Journal of Obstet.</i> , 1868.
9	Mauer*	Mucosa, submucosa, and muscle	Recovery	Thesis, Berlin, 1861.
10	Doran	Mucosa, submucosa, and muscle	Recovery	<i>Obstet. Trans.</i> , Lond., 1861.
11	Krukenberg	Mucosa, entire muscularis, and a large portion of peritoneum	Death	<i>Archiv für Gynæcologie</i> , vol. xix., 1869.
12	Specimen in Univer. Coll.	Mucosa, submucosa, and muscularis	Recovery	Specimen, 1466.
13	Phillip	?	Recovery	<i>British Medical Journal</i> , 1871.

B.—Due to Gravid Retroposition of Uterus.

14	Godson	?	Recovery	<i>British Medical Journal</i> , 1871, vol. ii., p. 432.
15	Wardell	?	Recovery	<i>British Medical Journal</i> , 1871.
16	Schatz	Mucosa, submucosa, and entire muscular wall	Death	<i>Archiv für Gynæcologie</i> , vol. i., p. 469.
17	Moldenhauer	Mucosa, submucosa, and some muscle	Death	<i>Archiv für Gynæcologie</i> , vol. vi., p. 103.
18	Frankenhausen	The greater part of the entire bladder wall with peritoneum	Recovery	<i>Archiv für Gynæcologie</i> , vol. vi., p. 77.
19	Luschka	Mucosa and submucosa	Death	<i>Virchow's Archiv</i> , 1854, p. 30.
20	Brandels	Mucosa	Recovery	<i>Archiv für Gynæcologie</i> , vol. vii.
21	Maunder	Almost entire bladder	Recovery	<i>Med. Times and Gazette</i> , vol. ii., 1863, p. 532.
22	Zeitfuchs	?	Recovery	<i>Siebold's Journal für Geburtshilfe</i> , 1833.
23	Wittich	Mucosa with portion of muscle	Recovery	<i>Siebold's Journal für Geburtsh.</i> , 1833.
24	Hausmann	Mucosa	Recovery	<i>Monatsch. für Geburt.</i> , 1868, vol. xxi., p. 132.
25	Madurowics	Entire thickness of bladder with portion of peritoneum	Recovery	<i>Wiener Med. Wochens.</i> , 1877, Nos. 2 and 3.
26	Hurry	Mucosa and submucosa	Recovery	<i>Edin. Med. Jour.</i> , 1884, p. 1000.
27	Pinard & Varrier	Mucosa, submucosa, and muscle	Death	<i>Annales de Gynecol. et d'Obstet. riques</i> , 1886.
28	Walters	?	Recovery	<i>Obstet. Transactions.</i>
29	Baynham	Mucosa	Recovery	<i>Edin. Med. and Surg. Jour.</i> , 1830, vol. xxxiii., p. 156.
30	Ritter	Mucosa and submucosa	Recovery	<i>Vierteljahrsschrift für Heilkunde</i> , Prague, 1844, p. 87.
31	Klein	Mucosa, submucosa, and muscle	Death	Inaugural Dissertation, Berlin, 1880.
29	Rosenplanter	Mucosa and submucosa	Recovery	Inaugural Dissertation, Dorpat, 1856.
33	Haultain	Mucosa and submucosa, and entire muscle with portion of peritoneum	Recovery	

C.—Due to Impaction of Fœtal Head in Pelvic Brim before Labour.

34	Whitehead	Mucosa, submucosa, and muscle	Recovery	<i>British Medical Journal</i> , 1871, vol. ii., p. 432.
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Those marked * had no retention of urine.

Here, then, we have seemingly a satisfactory explanation of all cases, viz., compression of the vessels of the neck of the bladder. In the retention of urine cases the circulation is arrested by compression of the veins alone, while in the labour cases both arteries and veins participate. In the former the process is slow and prolonged, in the latter it is acute and rapid.

The question then naturally arises, If such be the cause, how are examples of this lesion not more common, labours being of hourly occurrence, while retention of urine is by no means rare? To the first I can only say, it must be due either to some abnormal mechanism, such as the head passing through the brim in the conjugate diameter, and thus compressing the base and neck of the bladder against the pubic symphysis, or to a displacement of the bladder due to rotation of the uterus, by which means the base and neck of the bladder become squeezed between the side wall of the pelvis and the head normally entering in the oblique of the pelvic brim. As regards its infrequency in cases of retention, this may be explained, first, by the long and excessive retention necessary, the shortest recorded case being four days; and, secondly, that in our cases it is favoured by the coincidence of a pelvic mass in close relation to the neck and base of the bladder, which may act primarily as a "point of resistance" to the distension of the organ; and, secondarily, by itself assisting to compress the vessels.

As regards the nature of the receptacle for the urine which remains after the bladder has been shed, the condition is one of great interest. It is formed primarily around the necrosed organ by the agglutination of the surrounding organs to one another by inflammatory exudation of lymph, which later becomes vascularized and formed into new connective tissue—a line of demarcation eventually forming, and the necrosed mass being cast off as a slough. Examples of this condition have been met with post-mortem, and described by Schatz, Krukenberg, and Moldenhauer. In all, the remaining sac consisted entirely of connective tissue. That such has been the compensatory process in my case evidently accounts for the small white glistening portion on the external surface of the exfoliated membrane, which was microscopically made out to be composed of young fibrous tissue, this being probably a portion of the secondary sac which had been torn off during the process of expulsion. That the secondary or remaining sac is of no mean calibre will, I think, be evident when it is remembered that during the expulsion of the necrosed bladder it contained 96 ounces of urine, and formed a tumour which reached up to the level of the umbilicus.

Another point of great interest in connexion with this condition is the comparatively small number of fatal cases met with, viz., only 8 out of 33, a most striking example of the restorative tendency of Nature. The cause of death in all, with one exception, was exhaustion. In this one case (Krukenberg's), death was

the result of extravasation of urine into the peritoneal cavity through a rupture in the secondary sac, which occurred ten days after exfoliation, a condition directly caused by the supervention of abortion. The cause of rupture in this case is, I think, easy of explanation, when it is remembered that the secondary sac is founded upon the agglutination of surrounding organs, of which the uterus is one of the chief. Necessarily, then, upon abortion occurring a great diminution in the size of the uterus would take place, by which means the relations of the sac would be seriously interfered with, and tearing result.

Although death seldom occurs, future urinary incontinence is seldom absent in these cases in which the muscular wall has been shed; in some of these even a certain amount of retentive power remains, which must be attributed to non-involvement of the sphincter urethræ—the act of micturition being performed by the aid of the abdominal muscles alone. In these cases where only the mucosa and submucosa have been involved, entire restitution of the power of the organ is the usual sequence. As regards treatment, beyond frequently washing out the bladder with antiseptic solution nothing can be recommended.

Before closing, let me crave the leniency of the Fellows of the Society for the somewhat superficial nature of this contribution, but the details are so numerous that I feel that to go thoroughly into them would unnecessarily occupy the limited time at your disposal.

IV.—THE PLACE OF SYSTEMATIC LECTURES IN THE TEACHING OF MEDICINE AND SURGERY.

By CHARLES W. CATHCART, F.R.C.S. Eng. and Edin., Assistant-Surgeon Royal Infirmary, Edinburgh.

(Read before the Medico-Chirurgical Society of Edinburgh, 5th February 1890.)

WE hear it often said that since modern text-books have become so numerous and so good, lectures on Medicine, Surgery, and allied subjects have become superfluous, and are therefore a waste of time. Consequently, in any school of medicine, especially a large one, it is important for lecturers to consider whether they exist (as lecturers) merely in virtue of customs and rules, which should now be abolished, or whether there are possibilities in lectures which nothing else can replace in the training of students of medicine.

Looking at the matter in its widest sense, we will be pretty safe to say that, for a learner in any subject, some sort of guide is better than none, and that a well-instructed personal guide is better than a printed one, especially at the student's outset, and over difficult and new ground. More especially does this seem true when the subject of study is concrete rather than abstract, when the senses have to be educated, and when the phenomena

revealed to the educated senses have to be understood as well as observed. Moreover, the stimulus to thought and work which the personal influence of a teacher can infuse—the power of the human eye and charm of the human voice—can never be replaced by the printed pages of a book.

If this be granted in general, is it still true of systematic lectures in particular in contrast with clinical teaching? Before we try to answer this question, let us first inquire into the relative place of systematic and clinical teaching and study. And by clinical study I do not mean sitting in a hospital theatre and taking notes of a disquisition on cases seen a long way off; but I mean the careful, deliberate, and personal study of separate cases in every detail—where methods of investigation are practised by the students themselves, who thus verify the facts of disease recorded. This may be difficult to reach in a large school, but it should be the goal aimed at. The aim for ourselves and for our students is a rational empiricism in the field of disease. The empiricism, or actual experience, can only be obtained by clinical study in its widest sense. The special training which alone can make empiricism rational cannot be fully carried out at the bedside, and falls to the share of general as well as of technical education, of which systematic lectures on Medicine and Surgery form an important part.

As I take it, then, if systematic lectures on Medicine and Surgery are to hold a place in the medical curriculum, their object must be to prepare the student's mind for the highest form of clinical work during his student days and afterwards. If this be so, it is fair to ask whether or not the lecturer can attain this, and if so, how? Let us see.

1. By trying to explain the broad, general laws of pathology which underlie many diseases, such as the essential nature, causes, and treatment of inflammation, the healing process and its hindrances, and the real meaning of special symptoms in certain systems, the reason for their presence in certain diseases and absence in others, and so on.

2. By discussing, comparing, and classifying diseases and groups of diseases, indicating and explaining their chief symptoms, the general lines of treatment to be adopted, and the main points to be looked to in diagnosis.

3. By explaining, in illustration of the above, the principles carried out in the use of various instruments, by demonstrating pathological and anatomical specimens (fresh and in spirit), casts, and models, and by appealing to diagrams, photographs, and word pictures, and, where possible, to cases. For I can see no reason why fresh specimens and living cases, when they are available, should not be brought into systematic lectures.

By these means the student's interest will be excited, and his mental vision enlarged for his clinical studies.

But besides this positive view of what the lecturer should try to do, there is also the negative view of what the lecturer should try to avoid. There are three errors into which, as it seems to me, we, as lecturers, are apt to fall.

1. There is the error of trying to force into a student's mind, exclusively by memory, facts of disease which he can only really know when he has learned them at first hand through his own senses by the bedside. This error leads us to expand our courses to a wearisome extent, with great labour to ourselves and without corresponding profit to the student. Some rare diseases may, indeed, be left to description alone, but only because mere description is better than nothing.

2. There is the danger of *idolatry of means*. Putting representations of reality and stepping-stones to knowledge in the place of the reality and knowledge itself. In one form or another this error besets us at every turn in our schools of medicine. Diagrams, models, casts, special dissections, also analogies and parables, are, in their place, of the greatest service as helps or stepping-stones to knowledge. As soon, however, as they come to be considered—as they often are—ends in themselves, they are harmful. The difference between their use and abuse is just this,—that their proper use is to lead the student past themselves to reality; their abuse inclines the student to be content with them alone.

3. There is again an error into which all teachers, systematic or other, are apt to fall,—that of idolatry of their opinions by themselves, and expectation of it from their students. This is “*ex cathedra*” teaching—trying to force into the student's mind, by influence of position, opinions which he can only really hold when they have come there by the logical processes of his own mind. So long as a teacher indicates the reasons for his opinions, no harm, but rather good, can come of stating them; but when he lays them down as if they were the final settlement of all vexed questions, he does his students' minds a great wrong. For the time being, perhaps, this system may seem to simplify the subject, but it weakens the student's powers of reasoning, it fastens uncertainties on him as if they were truths, and prepares the way, when the fallacies come to be exposed, for the student throwing overboard all that that teacher has ever taught him.

If the view I have taken of the scope of lectures and the method of carrying them out be a correct one, we can now return to the question which we left, and consider whether printed addresses at home could replace the spoken ones in the lecture-room. My answer is, No; because, while many stepping-stones to knowledge, *i.e.*, demonstrations of instruments, of specimens, casts, cases, and diagrams, as well as the stimulus of the human voice and presence, would be lost to the text-book reader at home, the danger of raising such as he had (diagrams and word pictures) into the position

of idols, as well as of learning by rote, would be greatly increased. Some of the simpler and more generally accepted parts of the course may indeed be left to text-books. Then, however, the student's knowledge should be tested by oral examination in the lecture-room, and further explanation made if necessary. I would therefore deliberately conclude that, in the highest training of students of Medicine and Surgery, systematic lectures should be continued, since nothing else can take their place.

Let us see, however, if, apart from the errors already alluded to, our methods of conducting such lectures are as perfect as they might be. My remarks here may be grouped under two heads—*Note Taking*, and *Seeing*.

1. *Note Taking*.—In spite of a contrary opinion which is held by many, I am strongly persuaded that the laborious note-taking common in some schools of medicine is a bad system. To go into one of the classes where note-taking is rife, one would fancy one's self in a schoolroom at the dictation lesson. Most of those present seem like living machines for changing spoken into written forms of speech. Their reasoning faculty is subservient to the drudgery of trying to catch the speaker's words and meaning, and at the same time to compress it, so that in longhand they may keep pace with the lecture. Should they by vigorous shuffling and other signs of displeasure get the whip hand of the lecturer, and force him to slacken pace when he gets beyond them, then the lecture must be robbed of the charm of the speaker's individual manner and mode of expression, and of all the mental stimulus which that might have brought. Even if the lecturer takes his own natural way of expounding his subject, he must be chilled by the benches full of bent-down heads and scribbling fingers, knowing that all his energy, fire, enthusiasm, and logic is passing in at the ears and out, more or less mangled, at the finger points. By this system the students cannot follow a train of thought with individual and critical attention. Even the bare facts are seldom recorded correctly. The real work of learning must be done at home from the more or less imperfect abstract of the lecture to be found in the note-book.

It is claimed for this system that it maintains attention, furnishes the student with the lecturer's opinion on subjects on which he may be a special authority, and trains the student in making abstracts.

To these arguments I would answer that the lecturer's opinions on important points may be conveyed to the student in other ways, and that the power of making abstracts is bought at too high a price when the process involves a diversion of the student's mind from the subject discussed.

Again, the system of writing an abstract of the day's lecture on the black board is not good. The abstract, if full enough to be of service, will be copied by the student when he should be

attending to the lecturer. If short enough to be rapidly copied, it will be too meagre for the purpose in view.

The only system which seems to me to meet all requirements is that of supplying full abstracts prepared by the lecturer beforehand, and given into each student's hand. Mere headings are not enough. An abstract of facts and arguments is wanted. The lecturer may then freely invite the student to give his whole and undivided attention to the subject, adding only a note or two here and there. At home he will be able to spend more profitably the time he would otherwise have used in deciphering his notes, in recalling the lecture, and adding to his notes, as seems advisable. A plan very like this was employed by the late Rev. Dr Chalmers many years ago. Professor Grainger Stewart has, I understand, carried it out, formerly as an extra-mural lecturer, and now as a professor. Both he and Dr John Duncan devised it independently, the latter having also employed it until he left off systematic lectures. An increasing number of lecturers are now adopting the same system.

Were this principle systematically employed by all lecturers, the gain to the taught would be very great. For large classes printing would be necessary, but there the expense would be of less account. For classes of 50 and under, the cyclostyle answers admirably. Alterations would be necessary from year to year, but not every part would require alteration each year.

2. *Seeing*.—The great importance which has been hitherto given to note-taking has influenced the construction of all our lecture-rooms and teaching theatres. The seats have been arranged for convenience in writing, not for facility in seeing. The result is that only those in the front rows of our larger theatres can see anything which requires near vision, and the demonstrations to those in the back benches are a simple farce. Were attention paid to seeing, theatres might be put up so that the students could be heaped round the lecturer. By going in turn to different parts of his theatre the lecturer might give really serviceable demonstrations of his specimens to 50 or 60 students at a time. To more than this number one man cannot reasonably demonstrate, but where the classes reached to twice or thrice that number, several demonstrators might be employed, and a part of the lecture hour given up to the demonstration of illustrative specimens in succession to different groups of students.

In conclusion, therefore, while deprecating the abolition of systematic lectures on Medicine and Surgery, I would urge a recognition of their proper sphere, and advise improvements such as I have indicated on the previous methods of carrying them out.

I would also suggest—

1. That bedside teaching, as distinguished from and in addition to clinical lectures, should be considered to be as important and

as imperative as systematic lectures, since this bedside form of teaching can alone give real personal knowledge of diseases.

2. That courses to junior and to senior students, especially in Surgery, should be kept separate, say 50 to juniors and 50 to seniors. This would save the time of both.

3. That the plan advocated in the Students' Representative Council Report of permitting class meetings to be ranked equally with lectures be carried into effect in the regulations.

4. That in other departments of medical study the same general principles should be applied which have been here advocated.

V.—THE PHYSIOLOGY OF THE CELL CONSIDERED IN RELATION TO ITS PATHOLOGY.

By G. SIMS WOODHEAD, M.D., Superintendent of the Research Laboratory,
Royal College of Physicians, Edinburgh; and
G. E. CARTWRIGHT WOOD, M.D., B.Sc.

(Concluded from page 1048.)

WE have considered in some detail the general physiology of the cells, laying special stress on the process of differentiation which they have undergone, and on the fact that each exerts its specific function, at any rate, in its highest degree, only under those special conditions to which it has been adapted, in order that we might more readily understand how it is that a perverted action in any of these may give rise to a general departure from the condition of health which we term disease. These changes in the action of the cells may be purely quantitative in nature, consisting in either excess of, or defect in the normal function; or, on the other hand, they may arise from some new action of the protoplasm coming into play, which had not previously manifested itself. In investigating such questions we shall again find our problem presented in its simplest form in connexion with those changes in function which may take place in the lower organisms. Let us then see what occurs when these are subjected to any devitalizing agent, or when they are cultivated under any condition inimical to the full exercise of their vital functions. We have already arrived at the conclusion that those properties which most of all distinguish different organisms—such as the power of acting pathogenically, the powers of pigment formation and ferment action—are in all probability to be regarded as merely specializations,—secondary developments to a very high degree of what we may term primary metabolism of the protoplasm. We should, accordingly, expect these to be first of all affected when the organism is exposed to degrading influences, as it is then we should anticipate that the protoplasm would tend to revert to its primordial condition; such, indeed, we usually find to be

the case. Thus, by the application of a high temperature for a longer or shorter time the most characteristic (and most specialized?) properties may be lost, but the vitality of the organism as a whole is, usually, also more or less markedly affected. This direct "degrading" action exerted on the protoplasm by the heat, can, however, only with certainty be assumed in the case of spores, or in those cases where the temperature is allowed to act for a very short time, as under more lengthened exposure another factor, that of partial adaptation of the organism to the new condition, may come into play. Fitz found that if the spores of his *Bacillus butyricus* were kept for five hours at a temperature of 90° C., or for seven hours at 80° C., the organisms which germinated from them werestill able to multiply and act on albumen, but they no longer gave rise to any fermentation when they were grown in sugar solutions. Arloing, Thomas, and Cornevin, have similarly shown that if the spores of quarter evil (symptomatic anthrax) are heated for six hours at 85° C. they lose their virulence, and can then be used as a vaccine. We might from these examples be led to assume that the property which has been lost must be that which has been most recently acquired, but, as we shall see, this reversion theory must be applied with great caution, since, when the process is extended over a longer time, by choosing different agents, each of which appears to act more or less specifically on some special function, the degree of attenuation which each property has undergone exhibits the greatest variation, according to the agent and its concentration that have been used. It would be rash to draw conclusions from the effect of one devitalizing agent, and the above would only receive sufficient support when the results obtained by the action of several agents harmonized. It may here be asked, Is it then possible for the protoplasm to lose completely one of its properties? Hueppe has contended that such a faculty of an organism as that of producing a toxine is a *primary* property of the protoplasm, and as such is unchangeable. He founds this view on the fact that cultures of "Wildseuche" and Fowl-cholera, which were quite incapable of setting up disease in the subjects into which they were introduced, yet protected them against subsequent infection with virulent material. He concludes from this that the organisms still retained, to a certain extent, the faculty of producing their specific toxines. Chauveau has since then obtained, independently, similar results with anthrax, and has drawn a very similar conclusion. Looked at from the point of view which we have here developed, this would merely signify that although the external metabolism had been greatly impaired, a certain amount of the toxine would still be produced from the internal metabolism. It may, accordingly, be readily understood how such a faculty may never be completely lost, although it need not necessarily (under certain conditions) manifest itself. It is of no small interest in this connexion to find that the protoplasm of

the organisms undergoing attenuation becomes clouded and granular, —an appearance which we should attribute to the process of self disintegration, with the separation (and manifestation) of fatty and other matters which would then occur.

We have already hinted that along with the loss of function, which occurs during the process of attenuation, we may also have to take into account a certain degree of adaptation to the new conditions to which the organisms are being exposed, although this can naturally only come into play where the process extends over a lengthened period. Thus Chauveau found that anthrax was the more rapidly attenuated the higher the temperature he employed, fifteen minutes being sufficient, at 52° C., to produce the same attenuation as was obtained in twenty minutes at 50° C. *Vaccines* so prepared must, however, be used at once, since they lose this attenuation if allowed again to grow, their original virulence returning almost immediately. This subject has been still further worked out by Koch, who found that the more slowly the organism was attenuated, the more stable were the new cultures as vaccines. We can investigate this question much more readily by studying the loss of other functions of bacteria, such as those of pigment formation and enzyme action, as has been done elsewhere by one of the present writers.¹ It was found that the more gradually these were lost when certain organisms were grown in the lowest possible concentration of carbolic acid, and the longer they were cultivated under these conditions, the more permanent were the new varieties in their peculiarities. In addition, both the enzyme action and the power of pigment production might be alike affected, or only the one, according to the conditions to which they were exposed. From these results he concluded that when the degrading agency was so graduated as to prevent the exercise of the special function which it was desired to influence, but not sensibly to interfere with the other functions of the organism, these came into increased action and replaced it more or less completely, and thus inhibited the tendency to revert to its former state when again cultivated under normal conditions. There was, in fact, a change in the potentialities of the metabolic actions of the organisms, which, although probably only quantitative in character, must still be looked upon in a certain sense as a new adaptation of the organism. In the more rapidly attenuated cultures the vitality of the organism as a whole was impaired, and on the removal of the attenuating cause, even although the organism had been much more completely attenuated than the stable varieties of which we have spoken, the virulence tended very rapidly to recur.

It may now be well to consider more in detail what we mean by the term adaptation as applied to a cell or complex organism. The most striking experimental example of this is seen in the case

¹ Wood, *Proc. Royal Society*, vol. xvi. pp. 36-39.

of those infusoria living at a temperature of 65° Fahr., which Dallinger¹ gradually accustomed to endure a temperature of 158° Fahr. There are probably other instances of the same process occurring in Nature, especially in the case of those plants and animalculæ which are able to exist in the high temperatures which are met with in certain hot springs and geysers. Thus Descloiseaux found that certain algæ were able to live at a temperature of 168°–208° Fahr. One would naturally ascribe this to their having become accustomed to such temperature conditions.² We must, however, bear in mind, as Huxley³ has remarked on this very case, that "it is no explanation of this fact, but only another mode of stating it, to say that these organisms have become accustomed to such a temperature. If this degree of heat were absolutely incompatible with the activity of living matter, the plants could no more resist it than they could become accustomed to being made red hot." When Dallinger, by growing his infusoria at gradually increasing temperatures, enabled them to withstand much higher temperatures, the increased power of resistance must be ascribed to some change in the protoplasm itself.

We have already seen that when organisms were transferred from one nutrient stratum to another, many individuals succumbed from their being unable to accommodate themselves sufficiently rapidly to the new metabolic conditions. The process of "accustoming" appears, indeed, to consist essentially in bridging over by intermediate stages the change from the one condition to the other, although this in itself furnishes us with no explanation of what that modification consists in which the organism has, in this way, acquired, which renders it more capable of resisting the new environment. In transferring organisms from one nourishing medium to another it is evident that the inimical influence which the new medium at first exerts on the organisms is to be referred to the new metabolic activities which must there come into play, and we shall find also that in the case of temperature the adaptation to the new environment appears to consist essentially in a similar change in

¹ *Journal Royal Microscopical Society*, II., 1887, pp. 185–199.

² It is not, however, necessary to assume that the refractoriness of a subject to a given condition is always due to a gradual process of accommodation. We know that if we subject a number of organisms to a given antiseptic, that these will exhibit the utmost diversity as regards their susceptibility to modification, and this we refer to the specific characters of the protoplasm which had been produced in the course of their evolution. Now, it may happen that an organism may have developed a certain form of metabolism, or the potentiality of its rapid development, during the constant adjustment which must take place between an organism and its environment; and this may come into operation at once when placed under an entirely new condition, and thus simulate the appearance of an acquired tolerance. That is to say, an organism may have lying latent in it the capacity of a new adaptation which may never have been exercised, and yet may come into operation at once on the application of the appropriate stimulus.

³ Art. "Biology," *Encycl. Brit.*, ninth edition.

the metabolism. Every organism has more potentialities or modes of action than those which are actually in operation at any given time, and when the environment is changed one or other of these potentialities may come into action, replacing, more or less completely, a former one. Thus a higher temperature will, most probably, not act in an equally unfavourable manner on all the metabolic activities of the protoplasm, so that, in virtue of that selective action to which we have already referred, certain of these will tend to become more and more developed, enabling it to be less and less affected by this new influence. It has been shown that during the process of fermentation the relative proportion of the products formed depends on the temperature at which they are retained, and as this quantitative change in the metabolism results from the purely temporary influence of this factor, we can understand how the gradual incidence of this new condition might induce a more permanent alteration in these activities of the protoplasm leading to a state of tolerance of an otherwise fatal degree of its action. Let us consider, briefly, the effect of increased temperature on *Micrococcus prodigiosus*, a subject which has been specially worked out by Schottelius. This organism produces its pigment most abundantly at a moderate temperature, and when cultivated at about 37° C., where it grows most vigorously, it is almost colourless. If it is now continuously cultivated at this higher temperature, a colourless variety originates which no longer gives rise to the characteristic pigment, even when grown at the temperature most favourable for pigment production. This colourless form has not only lost its pigment function, but it no longer has the very unpleasant "herring brine" odour of trimethylamine which the normal cultures possess, so that it must be assumed that the metabolism as a whole has undergone very considerable alteration. In a later communication, Schottelius notes that if this colourless variety is grown for a sufficiently long period at the lower temperature, the pigment forming faculty returns. It would appear from this that although the change in the metabolism occasioned by the growth at the higher temperature persists for a certain time, still under the stimulus of its previous environment its former adaptation recurred.¹

The gradual acclimatisation of the infusoria in Dallinger's ex-

¹ An organism which has become adapted to a new environment is not always able to revert so readily to its former condition as in the present instance. The change in the metabolism as a whole (for a change in one function would entail a general re-grouping of the functions of the organism), may have so altered the character of the molecule, to use a simile borrowed from chemistry, as to give such a stability to the new metabolism that there may be little or no tendency to revert to its former action, even when cultivated under the old conditions. The fixity of the new habit appears, indeed, to bear no necessary relation to the time during which it has existed under the new condition, nor even to the degree to which the new function has been developed, but to depend directly on the organism with which we are dealing, that is to say, on the specific nature of the protoplasm.

periments are then, we think, in view of what has just been said, to be referred to a gradual change in the activities of the protoplasm of these organisms, due to those potentialities which were best adapted to the new condition undergoing a proportionate development in order that they might replace those potentialities less suited to the new environment. The temperature to which an organism can accommodate itself will depend on the way in which this, in each case, interferes with the physico-chemical processes of the protoplasm which are then brought into action. The degree of rapidity with which the tolerance is acquired, and the extent of the powers of adaptation of an organism, will accordingly depend on its potentialities and their capacity of extension, and these will vary, in each case, enormously, a view in perfect consonance with the results which experiments have already yielded.

This question of adaptation appeared to us of such fundamental importance, not merely in its general biological aspects, but also in its relations to physiology and practical medicine,¹ that we have for some time endeavoured to more accurately investigate this subject by means of direct experiment. Kossiakoff, at the suggestion of Duclaux, conducted a series of experiments on the resistance of organisms to antiseptic agents, and obtained the very interesting result, that if the microbe had been previously grown in dilute solutions of the specific substance it was subsequently able to exist in much higher concentrations. This acquired tolerance of a poison must be regarded from our standpoint as a new adaptation of the organism, and one which for several reasons seemed specially suited for the purpose we had in view. The degree of change in the organism could be here accurately measured, and thus the extent of the new adaptation and the fixity of the new habit might be definitely ascertained. In addition, as the acquired tolerance appears in each case to be more or less specific² in its character, we should thus be able to compare several adaptations of the same organism, and thus estimate its potentialities in several different directions. Our investigation is still very incomplete, but there is one result we may, perhaps, mention here as being of no little general interest. We found that each organism had not only its own primary powers of resistance as indicated by that concentration which inhibited its growth, but that each seemed to have a limit as regards the tolerance which it could be brought to acquire, and this appeared in each case to vary with the organ-

¹ Thus many of the morbid processes consist at first in a temporary perverted action of the cells (usually merely quantitative deviations from the normal), and our aim should be to break this habit before it has become fixed by its continued exercise, and by the correlated changes (often compensatory in character) which it may induce in the other cells of the body, and, in this way, prevent the process becoming chronic.

² Although the tolerance appears in each case to be specific, it is very probable that the change in the organism has really rendered it to a certain extent more susceptible to the action of some agents and more tolerant of others.

ism under consideration, and the antiseptic in which it was being cultivated.¹

This would indicate that the range of change in the protoplasm—that is to say, the degree of development which the metabolic processes called into play under any special condition are capable of sustaining, has in each case a definite limit which is sooner or later attained. This conclusion is in perfect harmony with observations which have been made in several other directions. For instance, there are many organisms which in our culture fluids exhibit the power of splitting up sugar, giving rise to the formation of acids, yet this power does not appear to be so increased under culture conditions as to give us any ground to suppose that each might ultimately develop the faculty to such an extent as to give rise to this action in such a typical way as we find, for example, in the lactic acid fermentation. In a similar way many putrefactive organisms can separate from the albumen poisons which readily set up a state of intoxication in animals, and although the degree of infectiveness of an organism is due essentially to the capacity which it possesses of producing its specific poison—the difference between the putrefactive and pathogenic organisms being purely a quantitative one—these saprophytes seldom appear able to increase this “toxic” faculty to the required degree for true infectivity, as the number of disease germs after all remains a very restricted one.²

The degree of virulence to which a disease germ can attain under any given conditions appears also to have a definite limit.³ Hansen in his researches on beer yeasts did not find that their activity increased under conditions of culture, and most of the specific ferments examined seem, when found, already to have reached the practical limit of their powers. This dependence of the extent of adaptation of an organism on those internal causes resident in the

¹ In some cases, however, after a certain interval this limit seemed to be broken, and the process of tolerance went on until another “stop” occurred. We have since then noted that Dallinger in his experiments has observed a very similar phenomenon. He says, “at certain points in the endurance of cumulative thermal elevations, a distinct physiological change is brought about with more or less difficulty” (*loc. cit.*) This period of apparent greater resistance to further change which may show itself from time to time, is, perhaps, to be associated with a re-grouping of the component functions of the organism which passes over, so to speak, into a new molecular combination. It cannot, accordingly, be affirmed in any given case that we have reached the final limit of change of which it is capable, and where the complex of functions which has originated is absolutely stable and unchangeable.

² It must be noted here that the pathogenicity of a microbe does not depend alone on the amount of the poison which it is able to produce outside the body, but also on whether it is adapted to the conditions present in the animal body, and especially on whether it is able to dissociate the albumen, with the resulting poison formation, at this animal temperature.—*Vide Berl. Klin. Woch.*, No. 16, 1889; *Lancet*, Dec. 7th, 1889.

³ The natural intensity of a disease by passage through a series of susceptible animals may be sometimes greatly increased, even doubled, as in the case of hydrophobia, yet here also a stage is finally reached where no further increase appears to take place.

protoplasm, which we speak of as due to its specific nature, has caused many naturalists to doubt or to entirely deny the direct transforming influence of the environment. Thus Naegele¹ represents the evolution of the organic world and its continued development as due to internal causes, just as the ova of different species of animals may under suitable conditions pass through their own series of changes on their way to the adult individual. In a similar way Meehan says, "Environment seems to have no further influence than to excite to action a change already ripe for development. Variations are in accordance with a prior plan by which Nature itself is bound."² We must, however, remember that although a change may be only quantitative in character, it induces a change more or less great in the organism as a whole, so that its potentialities in other directions may be enlarged, and by the exercise of these and the change in the organism which would again be correlated with this exercise, the original capacity may be indirectly extended. Indeed, just as in the successive stages of development of the individual we must regard each stage as containing the potentialities of the one which is to follow, so the changes in the organism, in response to its environment, may at any given time contain within themselves the germs of future changes, inasmuch as these may enable it to pass over into some new phase of activity which would have been otherwise impossible. We may in this way form a conception of how in the process of time, by gradual increments of change, those profound qualitative differences in the protoplasm of the specific organisms may have originated.

We have described the process of adaptation as merely a drawing out or development of that "side" of the protoplasm best suited to the new conditions, and have left it to be inferred that this would come into operation and undergo development under the influence of such *internal* causes as that selective action of the protoplasm to which we have already referred. The environment may, however, act on the protoplasm, not merely in calling into play these special powers of the organism, but, as we shall see from consideration of the way in which the protoplasm reacts to depressants in a certain stage of their action, it may impart a specific stimulus to the process. A very beautiful experiment of Lister's³ illustrates this point. If he caused a red-hot wire gradually to approach a ciliated cell, at a certain distance the movements of the cilia were quickened—the heat acted as a stimulant. "This was withdrawn, and again the speed of the movement fell. The hot iron was again brought near, and quickening was again produced, though not to such a marked extent. It was brought nearer still, and the motion now became slower, and at last ceased. When the hot wire was suddenly brought near

¹ *Mechanisch-physiologische Theorie der Abstammungslehre*, Munchen, 1884.

² Vide Thomson, "On influence of Environment upon the Organism," *Proceedings of the Royal Physical Society*, 1887-1888.

³ Chiene's *Lectures on Surgery*, p. 10.

the stage of the microscope, the ciliary movement stopped at once." This fact, that an influence which in excess brings the vital processes to a complete standstill can, if brought into play to a less degree, act directly as a stimulant upon these processes, is one of prime importance in relation to the well-known fact to which we have already referred, that an organism in order to acquire the power of withstanding such a devitalizing condition must be gradually accustomed to its influence by being previously subjected to its action in a modified form. It is not impossible that the ideal method of accustoming an organism to a given condition would be that in which the new influence was gradually brought to bear in such increments that its action was always as much as possible a stimulating one, and as little as possible a depressant. This stimulating effect of an agent which, in excess, acts destructively on the organism, is not confined to physical conditions, such as temperature, but is probably, as Schulz¹ has endeavoured to show, a common property of all poisons. Thus he was able to show that the ferment power of yeast was distinctly increased by the addition, in sufficient dilution, of such virulent protoplasmic poisons as corrosive sublimate, arsenic, carbolic acid, and iodine. From a long series of experiments he deduces the general law, "that every irritant (*Reiz*) exerts an action on every living cell, of which the effect in relation to the cell activity is inversely proportional to its intensity." Every physician has frequently occasion to note the stimulant stage which is produced by his sedatives, such as opium and chloroform, and to observe in the case of opium the enormous quantities which may be required by those habituated to its use to produce even its stimulating effects. It is not, however, to this law of stimulation that we wish here to draw special attention, but to an application of its principle, in explanation of that acquired immunity which an animal exhibits that has passed through an attack of a specific disease. This immunity should, as we have elsewhere endeavoured to show,² be regarded as an acquired tolerance of the specific poison, and we may now briefly consider how it is that this tolerance is so rapidly attained and so tenaciously retained by the cells of the animal attacked.

The adaptation of organisms to a higher temperature and the acquired tolerance of antiseptic agents by a microbe have already been explained as dependent on a change in its metabolism, those properties of the organism which were least affected by the new conditions coming into play; but there is still another factor which is of special importance in the case of the tolerances which an animal may attain towards the action of an animal alkaloid which we must here consider. Looked at from our former point of view, the effect of the injurious condition may be said to be merely

¹ "Ueber Hefe-gifte," Pfünger's *Archiv*, Bd. 42, S. 517; Virchow's *Archiv*, Bd. 106, S. 427.

² *Lancet*, Dec. 7, 1889, and Feb. 22, 1890; also *Comptes rendus*, Dec. 23, 1889.

evaded—the organism presenting another front to its environment; but it is possible for the organism to meet the new condition directly by the protoplasm acquiring a greater power of metabolising the poison, thus tending to reduce the quantity which can at any time come into operation to a stimulant. That this is a very important factor in these cases is indicated by the fact that such a tolerance of inorganic substances (*e.g.*, arsenic) is acquired by animals only with great difficulty and slowness, if at all, while the best instances of habit lessening the power of poisons have been observed chiefly in the case of the vegetable alkaloids. With some of the vegetable alkaloids, such as opium, there seems to be hardly any limit to the quantity which can be consumed when once the habit has become well established. We have, however, no example amongst these of any tolerance being acquired so rapidly as must happen during the process of vaccination (either by the attenuated microbes or their chemical products), or during successful crises in recovery from one of these diseases. Yet we know from Peiper and Beumer's experiments with typhoid toxine that such a rapid tolerance of the animal alkaloids can and does occur. These two observers found that two previous injections of this toxine protected against the subsequent introduction of what were previously lethal doses, a result with which none of those obtained in experiments with vegetable poisons are at all comparable. This is, however, capable of being explained if the tolerance depends, in part, on the animal having acquired the power of metabolising the poison,—a habit which the cells would acquire much more readily in the case of an animal alkaloid which resulted from the splitting up of its own substance, than it would in the case of a vegetable poison. The cells in the animal body are naturally much more capable of acting on substances resulting from the splitting up of their own albumen than on those resulting from the vegetable albumen which are foreign to their metabolism. We must not, however, ascribe the endurance of such large quantities of poison even to these two factors alone, as the rate of excretion exerts an all important effect on the action of a poison. Thus digitalis, when taken in moderate quantity, adds to the force of the heart's contraction and increases the secretion from the kidneys, but if from any cause the quantity present in the system accumulates beyond a certain amount, we have a diminution in the amount of urine excreted, and this is accompanied or quickly followed by irregularity and weakness in the heart's action, and by the other symptoms of digitalis poisoning. Another example of the arrest of excretion giving rise to poisoning is found in cholera Asiatica, where, as the cadaverine is so rapidly excreted by the kidneys, often no symptoms appear in an animal until the anuria set up by its irritation has allowed the poison to accumulate. Where the tissues have acquired a tolerance of the poison the process of excretion will proceed rapidly, and so prevent the onset of its depressant action by always keeping it in the body only in

such quantity that it may act perhaps even stimulatingly, and so aid in its own excretion. The acquired tolerance, accordingly, will not consist entirely of a direct resistance to the poison, but is due to the fact that the vital activities are not paralysed, but remain in full action, destroying the poison and removing it from the body by the usual channels. If we now consider the conditions of poison production as they occur during an attack of an infective disease, or when an animal is undergoing a process of vaccination, we shall find that these are precisely the ones which we have found best suited for the protoplasm to become adapted to a new condition. The poison is produced in gradually increasing quantity, so that the cells have every opportunity of acquiring a tolerance. The poison will at first be produced in very small quantity, owing to the vital influence which the tissues exert locally on the microbe before its *germicide* action has been removed by the depressant action of its poison, and this initial resistance, by allowing the tissues time to keep pace with the poison production, exerts a very important influence on the course of the disease, as evidenced by the very varying results afforded by the same *virus* according to the *quantity* primarily introduced and the *tissue* inoculated. Thus Watson-Cheyne¹ found that virulent anthrax which, under the ordinary conditions of inoculation, killed every animal rapidly, when introduced in very small numbers, frequently gave rise only to a local affection, and the animals so inoculated were usually found to have obtained a considerable degree of protection against subsequent infection. The advantage gained by the tissues in case of the primary introduction of the small quantity is to be referred, *firstly*, to the more slow production of the poison favouring the acquisition of the state of tolerance; and, *secondly*, to the *attenuating* influence which the cells in the immediate neighbourhood of the organism would continue to exercise on them until such period as their *germicide* action had been inhibited by the production of larger quantities of the toxine. The influence of the point of entrance of the germ in all probability depends, essentially, on the primary susceptibility of the surrounding tissues to the specific toxine, and the course of the disease would be affected in a precisely similar way as when a larger or smaller dose of the virus is introduced. If the acquired tolerance outstrips the poison production in an early stage the microbe may be destroyed locally, as it is then deprived of the means by which the "germicide powers" of the cells were held in check, and these now come into action.² When, however, the process progresses a stage further we may have a condition of *crisis* followed by a more prolonged struggle between the tissues and the microbe, as the affection has now become systemic. The great importance of the poison being allowed to act on the tissues at first only in very small quantity is

¹ *Brit. Med. Journal*, 1886, vol. ii. p. 197.

² *Vide Proceedings Roy. Soc. (Edin.)*, p. 44, 1889-90, for criticism of Metschnikoff's Theory of Phagocytosis.

very distinctly demonstrated in the experiments of Hankin¹ with an albumose which he has managed to isolate from anthrax cultures. These are the only experiments with which we are acquainted in which the effect of the quantity of the toxine introduced on the acquisition of the immunity is distinctly indicated. He found that very small doses conferred immunity, while slightly larger doses hastened the normal fatal course of the disease. As this more rapid death of the animal occurred even when the infection with anthrax followed several days after the dose of albumose, he concludes that "the albumose had remained in the system, or at any rate only a small part of it had been excreted." It appears to us that this is not necessarily the explanation of the case, but that the larger quantity of the toxine introduced may not only have interfered with the acquisition of the tolerance, but may even have acted as a depressant to those potentialities of the protoplasm which should have been stimulated, and in this way have rendered it more susceptible to infection, although the albumose may by that time have undergone complete excretion. By the use of very small doses of his toxine he was able to render even mice, which are extraordinarily susceptible to anthrax, refractory to Pasteur's 2nd vaccine. It may be here pointed out that the rendering of mice immune towards virulent anthrax, which had already been successfully achieved by Hueppe² and one of the present writers, was in all probability to be ascribed to the very slow poison production of the saprophytic anthrax with which they worked.

The acquired immunity is, we have said, to be regarded as an acquired tolerance of the specific poison, and it may be perhaps asked what changes in the organism as a whole result from this. Baumgarten, who considers that the body of an animal, after one attack, no longer offers a suitable nutrient medium for the microbe, refers this to a change in the cells whereby the fluids of the body suffer an alteration more or less permanent in character, but we have no evidence of so profound a constitutional change having taken place.³ The acquired change in the potential actions of the cells may, however, remain *latent* and exert no influence on the normal actions of the cells, although ready to come into operation at once on the application of the specific stimulus. The "memory" of the cells in this respect varies greatly for different diseases, some being protected during the remainder of the lifetime, while others, after the lapse of even a short interval, are again open to infection. There is some epidemiological evidence that this protective influence may be, in some diseases, in part transmitted to the offspring. Thus, it has been observed that when small-pox broke out among people which had not for several

¹ *Brit. Med. Journal*, Oct. 12th, 1889.

² *Loc. cit.*

³ In the case of certain of the continued fevers, e.g. typhus and typhoid, as a result probably of the prolonged action of the toxins on the cells, constitutional changes in the individual may be occasioned. Thus a man who has previously shown no tendency to lay on fat may afterwards exhibit this to a marked degree, or the reverse may be the case in some other individual.

generations been subjected to its influence, it exhibited a most unusual virulence; and measles, which is usually, with us, a comparatively mild disease, when it first appeared among the South Sea Islands acted as a most deadly scourge.¹

The question now arises, Does an attack of one infective disease affect the susceptibility of the individual to other such diseases? We know that no real immunity for others has as yet been proved to be acquired, but it is at any rate possible in many cases that lesser changes in the direction of greater susceptibility or insusceptibility may have been induced, although the experiments on the point have not yet been sufficiently delicate to indicate this. The environment, as represented in the geological and climatic characters of a country, we know exerts a very marked influence on its inhabitants. We do not here refer to endemic diseases, as here the influence of the locality probably depends not on the physics, but on the biology of the environment.² In some cases this may be referred to the locality offering favourable or unfavourable conditions for the growth of the microbe. In such cases as tuberculosis, for example, where this possibility of external culture is excluded, the influence of the environment must be due to its direct influence on the individual. The way in which this is exerted is still obscure, but the fact that localities free from liability to tuberculosis exist can no longer be doubted, and the favourable influence which these localities exert on those affected is frequently very marked. By altering culture conditions it has been found possible to change the virulence of certain disease organisms, and the environment appears able to induce analogous changes in the tissues of the host. We have a good example of a change in susceptibility to certain diseases in the varying receptivity of different breeds of swine and oxen to swine plague and tuberculosis; and it is by no means so difficult to conceive of how the countless influences which are constantly being concentrated from the environment upon the animal, may tend to modify the potential activity of the cells in that direction, which may serve to render an animal more or less susceptible to a disease.

In reference to what we have said, it may be urged that we have confined ourselves almost exclusively to the consideration of those direct changes in activity which a cell may undergo—changes which appear in the present state of our knowledge to be always quantitative in character, and usually to be variations in the direction of

¹ For reverse, see Lingard's experiments on infection of the fœtus in utero. *Proc. Roy. Soc.*, 1889.

² It has long been noted that the inhabitants of regions where endemic diseases prevail, enjoy a certain protection against such diseases which is, however, lost when the direct relations with these regions have been for some time interrupted. This is probably due to the ancestral precursors of the disease germ still persisting in these regions, and that these, although unable to cause the disease, can yet by acting as a vaccine confer a certain degree of protection.—Hueppe and Wood, *loc. cit.*

excess or defect of the normal function. It is essentially in these changes that disease may be said to consist, and as such they must ever be of the greatest interest to those engaged in the study of disease. In all cases of infective disease, for example, it must be remembered that we are dealing with two sets of vital organisms, and that from what we have seen modifying influences may be at work on either the parasite, on the host, or upon both, and that they also interact upon each other. The conditions of existence and the opportunity of exerting the full functional activity of the protoplasm of the bacteria or of the cells of the higher organism are so different, and are manifested under such different circumstances, and the modifications of their activities are compelled by such different modifying agents, that it is easy to see that both sets of protoplasm may have their full activity brought into play by the same series of environments, or one may be exalted and the other depressed, and as one or the other is in the ascendant a patient succumbs to or recovers from the disease.

It must further be borne in mind, that in the above sketch we have taken the metabolism of micro-organisms as typical of what may take place in the cells of higher organisms. As to the effects of the products of micro-organisms on these higher organisms, these also should be looked upon as merely typical of what the effects of specific toxic agents may be, and it is quite possible that as the result of more extended researches, the chemist will be able to build up toxic agents which will in all essential qualities be like those formed by certain micro-organisms. If micro-organisms and the chemist are able to do this, we should expect that "vitiated" cells of the animal body would be able to do the same within certain definite limits. In such conditions as gout and diabetes, although there is essentially a diseased condition, we have simply a quantitative increase of certain definite materials (uric acid and sugar) in the blood, which, in certain proportions, are found there in perfectly normal conditions. Under these conditions, and in their normal amounts, they may act as direct stimulants to the metabolism by which they themselves are destroyed, or to the secretory cells by which they are eliminated, but when they are present in larger quantities their depressant action comes into play, the metabolic processes are altered or interfered with, and the results are correspondingly modified. Of other conditions it is not necessary to give more than a typical example, or a mere note. The production of toxic materials in the body is going on constantly, and it is only by regular excretion that they can be kept down to the limits consistent with healthy and normal activity of the tissues. Recent researches on pernicious anæmia give evidence of the importance of this factor in the production of the disease, especially when, too, decreased elimination is added, the factor of increased production, brought about by a gradual change in the metabolic processes of the tissues of the body, or of the protoplasm of the organisms within the intestine. Most of the symptoms occurring in disease

are, however, secondary results of the primary modifications, and are often compensatory in character, as, for example, the rigor and fever that follow exposure to cold. These secondary effects may in certain cases be less direct, as in myxœdema, where there has been extirpation of the thyroid body, in which case the secondary changes which occur in the connective tissue throughout the body are due evidently, not to the absence of the action of the thyroid primarily, but to the secondary changes induced in the connective tissues, it may be as the result of the new work now thrown on them. A similar explanation might, perhaps, be advanced in connexion with Addison's disease; but we cannot here say that extirpation of these organs might not at once set up the characteristic symptoms. There is, in fact, a condition of adaptation to new conditions, certain tissues are called upon to do extra work, and the result is an altered metabolism resulting from which are the changes, both as regards structure and function, which follow. This adaptation to new conditions is perhaps nowhere so well marked as in cases of chronic Bright's disease, and probably also of gout, where the tissues may be gradually but very completely "acclimatised" to the presence of a very large proportion of those products which in normal conditions are rapidly excreted, but which in the diseased conditions accumulate in the blood in such quantities, that were the cells not to acquire a marked tolerance, the patients might succumb directly, and not, as is frequently the case, should complication be avoided, reach a good old age.

Of the alterations in the tissues in such conditions as tumour formation, it would be out of place to say more than that these growths must be interpreted in the light derived from the study of some of the factors already known to play a part in the formation of different forms of tumours. One of these—the relative "activity" of the tissues of the different embryonic layers at different periods of life, under normal and abnormal conditions—is found to play a most important part in determining the power of one tissue to encroach on or invade another.¹ Let us see that many pathological or biological problems may, with advantage, be studied from the standpoint of the bacteriologist; apply the same laws to tissues and cells that are found to govern the activity of the protoplasm of the lower or micro-organisms, and let us understand that slight variations of form do not necessarily involve change of function, but that altered environments are all powerful in bringing about deviations, depressions, or increased activities of metabolic processes and functions, and that quantitative variations in the activity of tissues in different positions and at different periods of life may give rise to morbid function, morbid structure, tumour formation, etc., and these in their thousand and one forms and modifications. The physiological cell, its history and modifications, must be the starting point from which to trace pathological processes, and where this cannot be done directly let us attempt to do it by analogy.

¹ Woodhead, "On the Etiology of Tumours," *Ed. Med. Journ.*, 1888.

VI.—DR JOHN BROWN : HIS LIFE AND WORK ; WITH NARRATIVE
SKETCHES OF JAMES SYME IN THE OLD MINTO HOUSE HOSPITAL
AND DISPENSARY DAYS ; BEING THE HARVEIAN SOCIETY FESTIVAL
ORATION, DELIVERED 11TH APRIL 1890.

By ALEXANDER PEDDIE, M.D., F.R.C.P. Ed.

(Concluded from page 1062.)

SYME's translation to the Royal Infirmary on 14th May 1833 was doubtless of great importance to himself, the profession, and the public, inasmuch as it was, in clerical phraseology, "a change to a wider field of usefulness," namely, the possession of a larger number of beds for clinical instruction in connexion with his professorship ; but many regretted the termination of a Hospital so unique in its character, so useful as a rival in medical instruction and good works, and which had communicated a charm and impulse to the lives of many pupils ; and no one at the time regretted it more than myself, as I was then Resident Pupil, and had nearly two years of apprenticeship to run.

But Minto House was not by that event to be altogether closed. There were yet nearly nineteen years of the lease to run ; at least fourteen or fifteen apprentices were on hand whom Professor Syme was under obligation to instruct in their profession ; several others were about to be placed under his care ; and a large medical and surgical dispensary existed, through which much active, popular, and beneficial work was performed, and invaluable experience obtained. Mr Syme therefore decided to continue the Institution as a Surgical Hospital, with a few beds for such private patients as would not go into the Infirmary, but who could pay a small board for accommodation in the Hospital ; and to continue the Dispensary as heretofore. A general charge to carry out this scheme and supervise and assist those apprentices who chose to attach themselves to it was given to myself ; and until April 1834 a number of very important cases were treated in the Hospital, and much varied and good work done in connexion with the Dispensary. Now, however, my connexion with the Institution was abruptly severed by a severe attack of typhus, contracted in visiting the poor during one of those dreadful epidemics, of which Sir Robert Christison has written in his Autobiography, the like of which has not occurred in our city since its sanitary arrangements have been so efficiently carried out.

But here I must go back in my narrative to speak of John Brown. Soon after I had joined Minto House, and after the incidents occurred on which the story of *Rab and his Friends* was founded, John began to do less in the Hospital. He had served ably and faithfully in it, but there were several others eager and able to carry on the work, and his term of indenture

was nearly at an end. Besides, it was quite evident that he was not fascinated by the excitement of operative practice ; and as these were not the days of chloroform or any anæsthetic, his intensely sympathetic and sensitive nature seemed to recoil from the painful scenes of surgery. Be this as it may, it was obvious that the current of his thoughts and tastes was running more in the grooves of literature, while if he pursued the profession of medicine it would be as a physician rather than as a surgeon. However, he continued for some time to visit the Hospital, generally with a volume of Southey, Coleridge, Scott, Carlyle, Wordsworth, or other distinguished author, under his arm, until the summer of 1832, when he was induced to accept an assistant's place with Dr Martin, a general practitioner at Chatham. A story is told of John while there, which showed his true goodness of heart and self-sacrificing devotion to duty. Cholera¹ having broken out with great virulence in that district, the panic became so great that, in the case of a very poor woman, no one would approach or render her the aid she needed. The young student assistant, however, did this ; and it happened that, overcome by continued efforts to save her, he was found at last fast asleep at the bedside, while she had entered on her eternal rest. John returned to Edinburgh in 1833, soon after Mr Syme had commenced his duties in the Infirmary, and in time that year to obtain the degree of M.D. He commenced soon thereafter in general practice for himself, for which he was more than ordinarily qualified from early experience on a surgical basis, from the observant character of his mind, his other varied accomplishments, and the attractiveness of his person and manners.

I have always gratefully considered myself as one of the earliest proofs of his kindly care and skill, together with the aid in consultation of Dr John Scott and Dr Abercrombie, during the epidemic of typhus I have already spoken of. I did not return again to Minto House, as many months were needed to restore strength and prepare for the License of the Royal College of Surgeons and for the Degree of M.D., the former of which I obtained in July and the latter in August 1835. The autumn and winter having been spent in travel on the Continent, and study of special subjects in Paris, I returned to Edinburgh, entering at once into general practice, and found that my friend Dr John had secured a very fair footing in the same.

Circumstances soon occurred which, while drawing John Brown and myself closer together, proved a new phase of interest in the history of Minto House Hospital and Dispensary and our connexion with Mr Syme. It was towards the close of 1836 that Mr Syme, finding the establishment financially burthensome, while otherwise not sufficiently compensating to him-

¹ First invasion of cholera in this country in 1832.

self, partly from inability in consequence of increasing engagements to direct its affairs and supervise his fifteen remaining apprentices, in several of whom there was a lack of enthusiasm in practical work; and looking to the fact more especially that fifteen years of the lease of the House were still to run, he resolved to break up the establishment, advertise the premises to be let, and employ his apprentices, as far as possible, in connexion with the Infirmary and his private practice.

On hearing this from himself, I offered to take the House with its furnishings off his hands, if such was obtainable at a considerably reduced rent; to continue the Hospital as a *Maison de Santé* for patients who could pay a moderate board according to the accommodation afforded; to carry on the Public Dispensary; and to take the supervision of such of his apprentices as would be willing to conform to rules laid down regarding the in and out practice of the Institution. Further, that in consideration of said reduction of rent, Mr Syme should be consulting surgeon, while any private patients of his own would be attended to in the House, and operated on by himself; that his apprentices, until their term of indenture expired, should have the first claim to appointments as dressers or clerks, and also to the situation of resident pupil; and that they should have all the advantages along with other pupils for Dispensary attendance at the waiting-room examinations and clinics, and unlimited choice in the outdoor practice.

These proposals were eagerly accepted by Mr Syme; and we agreed to invite Dr Brown, and Dr Cornwall—a former apprentice of my own standing—to become joint medical and surgical officers with myself, and of course sharers of risk in upholding the remodelled Institution.

This being agreed to, the Institution was opened with twelve beds on the 9th January 1837; and the expectation of funds to support it were, besides the boards from patients, the board of a resident pupil, the fees of pupils for Dispensary practice, and Pharmacy—under a qualified apothecary—both of which were recognised by the Medical Authorities; and, lastly, from public donations and subscriptions.

For ten years, under a board of directors, these arrangements were carried on with much cordiality and great benefit to the public, pupils, and all concerned, when Dr Brown, feeling that he had as much hospital experience as he cared for, and that he had obtained a good footing in private practice, while desiring more time for the cultivation of those literary tastes and aspirations—which afterwards were turned to such splendid account—resigned the medical officership; and Dr Cornwall, taking advantage of this break in the partnership, retired at the same time.

Thus left, in 1847, in sole charge of the Institution, I carried it on until 1852—the five remaining years of the lease—with the

aid of a number of energetic pupils. Now, however, as a very large rent was demanded by the proprietor of Minto House; as a considerable renewal of furnishings would have been necessary for its continuance, and as the pressure of private practice had become too much to allow time for that close personal superintendence essential to secure the successful working of such an Institution, I felt the necessity of giving it up.¹

Although Dr Brown had retired from the medical officership of Minto House in 1847, he desired to be placed on the board of management, and he came frequently to the Dispensary waiting-room clinique; was interested in the short course of clinical demonstrations given by myself to the pupils on diseases of the chest and of the skin, etc., illustrated by examination of Hospital and Dispensary patients, plates and diagrams. He was likewise greatly interested in a change I made, under an apothecary acquainted with the cost price of drugs, in the working of the Dispensary on the provident principle applied to that department as well as to the boarding of patients in the Hospital. By this arrangement the unique character of the Institution was completed, so that during the last two years of its existence subscriptions from the public were not solicited, as it had become entirely self-supporting. For a time there was a considerable reduction in the number of Dispensary patients for advice; but soon the Institution was gladly taken advantage of by large numbers of the labouring classes, who seemed to prize more highly advice given and medicine supplied when something was given in return; while the necessitous poor were recommended to the Old and New Town Dispensaries, for whom such were legitimately intended.

Dr Brown, who as a director drew up the last report, expressed among other things, in the name of the Board, deep regret that the Institution was of necessity being brought to a close, and the hope "that an establishment so unique in character, so wisely benevolent in design, and so eminently beneficent in its results, may be speedily revived, and secured permanently to the community." Although this was published in the newspapers of the day, no one in the profession was so spirited as to act on the suggestion thus given; and no institution altogether on the same lines has as yet been established, although its record proved that an hospital and dispensary for the industrious classes was a want, and could be maintained on a self-supporting principle.

¹ During these fifteen years the number of pupils—exclusive of Mr Syme's apprentices—who took tickets for Dispensary Practice and Pharmacy, were 133; the number of medical and surgical patients boarded in the Hospital were 1117; and those receiving advice at the Dispensary and attendance at their own homes were 59,568 (of which upwards of 200 were obstetric cases); while the total expenditure of the Institution amounted to £4827, 16s. 6d.—or about £322 per annum—an economy which could only be secured by careful supervision.

Your time will not permit me to dwell longer on these Minto House days and doings, to which I look back with so much satisfaction; and especially do I regret that the compass of this address prevents me saying all that I would like to say respecting John Brown prior to 1852, and all regarding him during the subsequent part of his professional and literary career, when his fame was most established, his popularity greatest, and when he and I were even more closely associated professionally and in the kindly bonds of brotherhood. But as those days came to a close only eight years ago, and as nearly all present must recollect his personal appearance, and have some knowledge of the remarkable individuality of his character and writings, I shall confine my concluding notice within a brief compass.

In regard to appearance, Dr Brown's large and finely-moulded head and forehead, silver locks, penetrating yet soft and sympathetic spectacled eyes, firm but sweetly sensitive mouth, stout and well-shaped body, and singularly genial and attractive manners, were all too well marked to escape notice or to be soon forgotten. As age advanced beyond the Minto House days, his physical bulk and expressive features increased, his literary productions became more charming, and intercourse with his fellow-men more fascinating, only interrupted at times when natural brightness was overshadowed by clouds of despondency and self-depreciation, which generally had as the exciting cause some family affliction, or the suffering or death of a patient or intimate friend, touching his keenly sensitive and spiritual nature.

His first literary effort was put forth in 1846, when Hugh Miller, the distinguished geologist and gifted author of *The Old Red Sandstone*, the *Testimony of the Rocks*, and other works, and the then editor of *The Witness* newspaper, sent to him a £20 note, with the request that he would contribute to that paper a series of notices of the paintings of the Royal Scottish Academy then being exhibited, hearing, doubtless, that art and paintings were his hobby.¹ This request was received with great astonishment, both because he had no acquaintance with Miller at that time, and never before had written a word for the press. His first thought, therefore, was, as he states in the article afterwards published—"Notes on Art"²—to decline the request, "had not my *sine qua non*, with wife-like government, retentive and peremptory, kept the money and heartened me." I need not say how admirably the imposed task was performed in a series of exquisite word-pictures. The paintings in that exhibition were certainly of rare quality, and, indeed, no such critical notices of our annual Academy displays have ever since appeared.

¹ "Art is part of my daily food, like the laughter of children, and the common air, the earth, the sky; it is an affection, not a passion to come and go like the gusty winds, nor a principle cold and dead; it penetrates my entire life, and is one of the surest and deepest pleasures."—*Horæ Subsecivæ*, vol. i. p. 231.

² *Ibid.*, vol. i. p. 216.

John only needed this beginning of authorship to discover his power to write attractively for the public mind and heart; and encouraged by the universal praise which these notices called forth, he contributed to the *North British Review*,¹ in the following year, an able article on Ruskin's *Modern Painters*. And now the accumulated knowledge of past years; cultivated taste in the ancient classics, in philosophy, literature, science and art; keen observation of men and manners—of great things and little things; of sympathy with all that is good, noble, and natural in humanity, and appreciation of all that is beautiful in nature and art, were no longer restrainable. Like a stream his thoughts—sometimes deep, smooth, and solemn, sometimes rapid, lively, and sparkling—continued to flow from his pen in a variety of papers for upwards of thirty years, only interrupted at times by seasons of poor health. These were published in various forms, but chiefly as contributions to periodicals and newspapers. Several of these papers were on two occasions collected in separate volumes under the title of *Horæ Subsecivæ*, of which there have been many editions published here and in America; and nearly all of his writings were brought together and published in three volumes under the same title in 1882, almost coincidently with his decease. Here I may notice that, while his pen was swift in the expression of true genius, and while he was always so ready and interesting in conversation, he did not possess the gift of extemporaneous speaking, at least he shunned every occasion on which there was the possibility of his being called on to make a speech in public.

Some have regretted that Dr Brown's name has not been connected with any large work, instead of what have been styled fugitive or fragmentary pieces, which are supposed soon likely to be shelved and forgotten. His health, however, was never so stable, nor character of mind so plodding, as to fit him for prolonged study or sustained effort; but it may be averred that, like the miscellaneous pieces of many of our best writers, both in prose and verse, these short *Horæ Subsecivæ* effusions are likely to impress the mind and cling longer in the memory than would productions of a more ambitious character.

All that he did write was done, as he himself expressed it, "on the quick." Hence the freeness, freshness, and forcibleness of all his writings. What could be more charming than those descriptions of scenery and country life as are found in his "Minchmoor," or the "Enterkin?" What more delicious in delineation of incident and character as in "Marjorie Fleming," where the then great unknown novelist, finding himself one day "off the fang" in writing his *Waverley*, hastened to a neighbouring house and carried to his own in Castle Street, during an "on-ding o' snaw," in the *cul de sac* of his shepherd's plaid, his pet

¹ *The North British Review*, vol. vi., February 1847, pp. 401-30.

Marjorie ; and then, after unfolding it and holding her on his knee, spending hours of merriment and wonderment with the "rosie wee wifie" in pretending to be taught by her childish rhymes, and in return teaching her curious old ballads, and getting her to recite passages from Shakespeare!¹ What could be more touchingly pathetic, natural, and memorable than some of the descriptions in *Rab and his Friends*,—such as of Ailie's "unforgettable face—pale, serious, lovely, delicate, sweet ; her 'mutch' white as snow, with its black ribbons ; her silvery, smooth hair, setting off her dark gray eyes—eyes such as one sees only twice or thrice in a lifetime, full of suffering, full, also, of the overcoming of it ; her eyebrows black and delicate, and her mouth firm, patient, and contented, which few mouths ever are!" Then on her arrival at Minto House, how her husband lifted her from the cart as if "Solomon in all his glory had been handing down the Queen of Sheba at his palace gate ; but who could not have done it more daintily, more tenderly, more like a gentleman than did James the Howgate carrier."² Then all that follows,—the operation, the tender watching by James himself, who "wad hae nane o' yer stryngie nurses ;" and lastly, Ailie, when delirious and dying, living her early days over again, singing scraps of old ballads mingled with the Psalms of David, and "rolling up a nightgown, murmuring foolish little words over it," with a look of surprising tenderness and joy, and holding it to her wounded breast under the impression apparently—as her afflicted husband interpreted it, saying—"Waes me, Doctor, I declare she's thinkin' it's that bairn—the only bairn we ever had—our wee Mysie ; and she's in the Kingdom forty years and mair." All this and much more is told with incomparable simplicity and power. The death of Rab, too, like those of his mistress and master, is pathetic in the extreme. This I may summarize in a few words. The ground was again white with snow, and Ailie's grave was in a short time opened to receive her devoted and broken-hearted husband. Rab again looks on at a distance, then slinks home to the stable ; refuses food, or to leave Jess the old mare in the stable, or to permit an approach to her, and became so dangerous as to necessitate a happy despatch—which, as the narrator expresses it, "was a fit end for Rab, quick and complete : his teeth and friends gone, why should he keep the peace and be civil?"

There are many other most memorable graphic pictures in these *Horæ Subsecivæ* papers from which I am tempted to quote, but I shall only mention specially those which are to be found in "Notes on Art," "John Leech," "Jeems the Doorkeeper," and "Our Dogs"—particularly regarding "Toby the Tyke." I cannot, however, help quoting again from *Rab and his Friends*, namely, the portrait of Rab himself—a full-length one, and so character-

¹ *Horæ Subsecivæ*, vol. iii. p. 204.

² *Ibid.*, vol. i. p. 273.

istic of the limner. Rab was "a dog of which there is none such now—one of a lost tribe; brindled and gray like Rubislaw granite; hair short, hard, and close like a lion's; body thick set like a little bull—a sort of compressed Hercules; having a large, blunt head, and a bud of a tail; a muzzle black as night; his mouth blacker than any night; a tooth or two gleaming out of his jaws of darkness. His head scarred with the records of old wounds; one eye out, one ear cropped as close as was Archbishop Leighton's father; the remaining eye had the power of two; and above it, and in constant communication with it, was a tattered rag of an ear, which was for ever unfurling itself, like an old flag; and then that bud of a tail about one inch long—if it could in any sense be called long, being as broad as long,—the mobility, the instantaneousness of that bud were very funny and surprising; and its expressive twinklings, the intercommunications between the eye, the ear, and it, were of the oddest and swiftest. Rab had all the dignity and simplicity of great size; and having fought his way all along the road to absolute supremacy, he was as mighty in his own line as Julius Cæsar or the Duke of Wellington, and had the gravity of all great fighters, or, as a Highland gamekeeper said of his dog,—‘Oh, sir, his life's full of sairiousness, he just never can get eneuch o' fechtin’!’”¹

Some have regretted that Dr Brown, being a physician of so much experience and power of observation, should have written nothing special on any strictly professional subject, not even a case in a medical journal. But while his genius carried him by preference on those lines which have instructed and delighted thousands of the general public, he did not overlook the importance and the interests of his own profession; for in the papers "Locke and Sydenham," "With Brains, Sir," "The Excursus Ethicus," "Lay Sermons on Health," "Our Gideon Grays," "Dr Henry Marshall and Military Hygiene," and numerous memorial sketches of medical men, thus by the reflected light of an all-round knowledge of medicine and medical men, Dr Brown in these papers inculcated thoroughly orthodox views in medical faith and practice, namely, as regards the self-regulating, self-adjusting power of Nature in disease; the primary importance of considering Medicine as the art of healing, not less than the science of diseases and drugs, and the great importance of a liberal education to qualify a medical man for the exercise of his profession. Besides, he has not overlooked the ethics, duties, and responsibilities of the profession, namely, the courtesy which is due to each other—not always attended to in the present times; the kindness due to patients, and the consideration due by the public to our profession, and especially to our hard-worked country doctors, the Gideon Grays

¹ *Hora Subseciva*, vol. i. pp. 374-5.

who, with doubtful praise, have been styled the rough and ready practitioners, but who are, now at least, as gentlemanly and as well equipped as the general run of city doctors. The prime qualifications of a physician or surgeon Dr Brown sums up in these pregnant words:—" *Capax, Perspicax, Sagax, Efficax* :— *Capax*, there must be room to receive, and arrange, and keep knowledge ; *Perspicax*, senses and perceptions—keen, accurate, and immediate—to bring in materials from all sensible things ; *Sagax*, a central power of knowing what is what, and what it is worth, of choosing and rejecting, of judging ; and finally, *Efficax*, the will and the way, the power to turn all the other three—capacity, perspicacity, sagacity—to account in the performance of the thing on hand, thus rendering back to the outer world, in a new and useful form, what is received from it. These are the intellectual qualities which make up the physician, without any one of which he would be *mancus*, and would not deserve the name of a complete artsman, any more than proteine would be itself, if any one of its four elements were amissing."¹ As a postscript to these philosophical and practical views, I cannot resist quoting a worldly-wise bit of advice which Dr Brown gives :—" Let me tell my young doctor friends, that a cheerful face and step, and neckcloth, and buttonhole, and an occasional hearty and kindly joke, a power of exciting, a setting agoing a good laugh, are stock in our trade not to be despised. The merry heart does good like a medicine."²

In Dr Brown's life and work—social, professional, and literary, SPIRITUALITY and a distinct PERSONALITY were the most striking features in his character.

His SPIRITUALITY is either openly expressed, or appears as a pervading breath in almost all his papers. While in social intercourse, although reserved on sacred subjects, it was frequently apparent to those most intimate with him, that even in states of sunny brightness and sparkling humour, a dark cloud of emotion would overspread his countenance, revealing the workings of the inner man. In his later years he was often seen with his eyes closed, as if excluding the outer world from his thoughts, and giving himself up to devout contemplation. Divine reverence and human sympathy were as essences in his nature ; and it was from such indwelling sensibilities and views of life's seriousness that, like Wordsworth, Cowper, Coleridge, and some other gifted men, he suffered so much at times. What could be more touchingly simple and reverentially expressed, what more indicative of central Christian faith than the concluding paragraph of his lay sermons—" Plain Words on Health"—addressed to working people ! " Good night to you all, big and little, young and old, and go home to your bedside. There is

¹ *Horæ Subsecivæ*, vol. i. pp. 402-3.

² *Ibid.*, vol. ii., " Locke and Sydenham," Introductory, p. 31.

Some One there waiting for you ; and His Son is here ready to take you to Him. Yes, He is waiting for every one of you, and you have only to say, ' Father, I have sinned—make me '—and He sees you a great way off. But to reverse the parable, it is the First-born, your Elder Brother, who is at your side, and leads you to your Father, and says, ' I have paid his debt ; ' that Son who is ever with Him, who is all that He hath."¹

Then in music Dr Brown had intense delight, although he could neither play, nor did he sing—except in church. When music was good, he would sit a whole evening an enchained listener. Handel and Beethoven were his favourite composers ; and whenever the oratorio of the Messiah was performed in our city, he was sure to be present. I remember his saying that he found its sublime strains more elevating and more promotive of religious feeling than any sermon he had ever heard. It was to him something higher than mere sensual artistic pleasure,—it was a pure devotional exercise, exalting the soul and sanctifying the place. His views of the connexion of morality and religion are admirably expressed in a letter to the late Principal Shairp of St Andrews. " All true morality merges in and runs up into religion ; all true religion blossoms and breathes out into morality and practical and immediate goodness and love. What is the whole duty of man but his entire special morality ; and what is man's whole duty—love to God and love to man, not excluding himself as being a man."² In fact, in all the relations of active life the regulating principles of Dr Brown's nature were simplicity, sincerity, integrity, truthfulness, humility, and love ; and nothing was more abhorrent to him than irreverence, heartlessness, affectation, ostentation, pretentiousness, sham, or hypocrisy.

Then all who came in contact with John Brown were impressed and charmed by his distinct PERSONALITY. This characteristic was apparent in personal appearance, tones of voice, the keen gaze through or over his spectacles, perception of peculiarities in persons and things, currents of thought, human sympathies, social affinities, style of humour, play of fancy, and insight and subtle analysis of character.

In the thoroughfares of the city he seemed to know, or to be known by almost everyone. When in good spirits he had a smile or nod for one, a passing quaint remark or joke for another, an amusing criticism on an article of dress or ornaments displayed by a third, or to others ready and happily expressed words of recognition, congratulation, encouragement, or sympathy, as occasion and circumstances suggested. And in the case of canine passers by—for he had many such familiar friends

¹ *Hours Subsecivæ*, Appendix, vol. ii. p. 90.

² *Principal Shairp and his Friends*, by Professor Knight, p. 265. John Murray, London.

—he had a pat on the head or some commendation or criticism to bestow ; and if they were strangers, an interest manifested in their ownership, breeding, intelligence, or comicality—especially if terriers—of whom he has spoken as “those affectionate, great-hearted, little ruffians!” For dogs in general he had a well-known love ; and though bitten severely by a dog when a child, he has told us that he has “remained ‘bitten’ ever since in the matter of dogs.”¹ He understood them well, and they seemed to understand him. He had a high appreciation of their intelligence. Of Professor Veitch’s dog “Birnie” he wrote on one occasion thus : “Don’t let Bob (a bull terrier) fall out with him: Birnie is too intellectual and gentlemanly righteous not to do everything consistent with his character to avoid a combat.”

Of my own “Dandie” he used to say he “knew only one dog superior to him : he must have been a Covenanter in a former state.”

At the bedside of the invalid, and the case serious, he was grave and warmly sympathetic, giving the full benefit of a concentrated mind, in which there was much professional acumen and varied experience ; while in ordinary cases his cheery smile, witticisms, an appropriate anecdote, or the notice of anything odd or novel in the apartment, diverted for a time at least morbid apprehensions or nervousness in the patient, and so proved highly beneficial—even without a prescription, and with the result that an early repeated visit was longed for.

In society and at the social board John Brown’s extensive acquaintance with literature of all kinds—whether in prose or verse—which he called “fine mixed feeding,” and of literary men ; his acuteness on most subjects talked about ; his remarkable fund of anecdote ; the felicitousness and quaintness of his remarks, and in the way of putting things ; also his geniality, playfulness of humour, careful avoidance of that which might create unpleasant discussion ; and the happy method of drawing persons out to tell what they knew, made his society universally courted. On such occasions he was generally the centre of interest ; but he shone brightest in the family circle, or with a few kindred spirits or familiar friends. From this happy and unique combination of kindness and homeliness, tenderness and humour, with true genius manifested both in social life and in his writings, John was not only beloved and admired by his immediate friends, but became the associate and correspondent of many of the most distinguished men of the times. Among these I may mention Carlyle, Ruskin, Dean Stanley, Sir Henry Taylor, Gladstone, Erskine of Linlathen, Sir James Clark, Duke of Argyll, Thackeray, Oliver Wendell, Holmes, Mark Twain, Sir Theodore Martin, Professor Shairp, John Leech, Sir George Harvey, Sir Noel Paton, Sir Robert Christison, Rev. Drs Hanna

¹ *Horne Subversive*, vol. i. p. 181.

John Kerr, and William Robertson, etc., etc. Although, however, John Brown's acquaintance was very large, his intimacy was by no means indiscriminate, for with all his simplicity of character he possessed a wonderfully searching power of observation; and as in cases of disease his diagnosis was rapid, so his perception of character was as if intuitive. Thus likings and dislikings were formed generally at first sight, and just; and when so, proved strong and enduring. But Dr Brown's heart was drawn strongly out to those who like himself possessed a sympathetic and pathetic nature,—quickly moved with pity for those in sorrow, while sympathetic with the joys of others, and especially with such as had in them wit and humour. It has been truly said that tears and laughter spring from the same source, or are readily excited in the same mental constitution; and it is equally observable that such individuals are strongly attracted to each other. This, indeed, was a powerful magnet in his friendships, and a bond of interest in his professional relations. A lady, one of his patients, frequently inclined like himself to depression of spirits, told me that one day when they were walking together in the country and describing their feeling, he said, "Tell me why am I like a Jew?" She could not answer, so he explained, "Because I am sad-you-see." Thus he could even be witty on the subject of his own affliction, and at a time when a dark band of cloud hung across him.

His pleasure in the society of women and appreciation of womanly goodness was great, and their attraction to and admiration of him was sometimes almost idolatrous. Thus his professional success was frequently much indebted to ladies—especially those with warm hearts and of refined intellectual endowments; and many a fee, I believe, was obtained by him, not so much on account of important illness, as from the desire to enjoy his presence even for a brief interval. On several occasions American ladies, captivated more especially by the Idylls of *Rab and his Friends* and *Pet Marjorie*, were most desirous to see, and if possible to shake hands with the author; but this kind of inspection and interviewing—when he happened to be somewhat low in spirits—was the reverse of agreeable to him.

His interest in children is well known to have been great. He understood them well; and their innocent laughter and droll ways were delightful to him. He had always something funny to say or to do to them, in order to excite laughter or wonder, to try their temper, or to draw forth natural peculiarities. Many now grown up to be men and women can recall his bewitching ways. I remember on one occasion he gave a juvenile party, and opened the door himself, attired as a high-class footman, and announced each party by the oddest fictitious names. This sort of joking was sometimes practised even in the company of older people with whom he was intimate. Thus, on the

occasion of an evening party, at a time while a notable trial was in progress, and the talk of the assembled company was concerning it, the drawing-room door was thrown open and the waiter solemnly announced—"Major Yelverton and his two wives." During the delay of a few seconds all looked astonishment, until Dr Brown walked in with a lady on each arm. This practical joke proved the key-note of the party, which was a hilarious one during the remainder of the evening. He was always kindly to friends, and courteous to strangers visiting him ; and it was his invariable practice to see every one to the door on leaving, sending them away with a witty remark, sometimes a practical joke, and in every case with a pleasing remembrance of the visit.

Then in correspondence with an intimate juvenile friend, or when calling for some one who happened to be from home, he would, in the former case send, and in the latter sometimes leave, a humorous note signed JEYE BEE in fancy capital letters, with an artistic pen and ink sketch, not unworthy of a Leech, Doyle, or Furniss, representing, it might be, a man with a small forehead, long nose, a stick leg, and hands in the side pockets of a pea jacket; or of a shaggy-coated terrier in a remarkable attitude, or some other equally grotesque figure. I mention these things, though trivial in themselves, to illustrate the naturally elastic character of the mind of one who—while able to converse on subjects learned and profound, write philosophically and seriously, and mix in society with men of high rank or great intellect—could equally accommodate himself to those of inferior age, position, or mental endowments ; and by pen or otherwise promote innocent enjoyment and instruction, winning to himself esteem and admiration wherever he was personally known or his works read. His homeliness, also, and simplicity were very conspicuous. One day the Princess Louise, shortly after her marriage with the Marquis of Lorne, was calling on him at Rutland Street, and coming down stairs from the drawing-room he was overheard to say to her, "And how is your mother?" The naturalness of this was understood.

If there was a humorous side of anything in appearance, manners, speech, or writing, John Brown was sure to observe such when others did not, and to notice it in a way peculiarly his own ; but in doing so, from his good qualities of head and heart, and his benign countenance, he never gave offence. Thus meeting him one day, parting from a young doctor who had newly started a carriage, he said—"I've just been telling him, I'll pray for his humility." But it is not necessary to quote many witty sayings or humorous incidents, and the circumstances in which such occurred, to recall how much of a humorist John Brown was. Quaintness in conversation notably indicated that phase of his nature ; and the ready way in which he drew on a

rich store of anecdote, and the humorous point which such generally had on a subject under discussion, was as attractive as any genuinely spontaneous witticism. Besides, his papers abound so much in true wit and humour, that they are sufficient of themselves to settle his title to be ranked as a humorist.

In all Dr Brown's writings his personality is most conspicuous; the style is unquestionably his own, not formed on any classic model, ancient or modern; and their character is unique. They have been spoken of as bearing some resemblance, if not in style, at least in matter, and especially in humour, to those of the gifted author of *Elia and Eliana*. But although John Brown is known to have admired the genius and enjoyed the humour of Charles Lamb, the individuality of their respective works is markedly distinct, as might be expected, from the widely different early social relations, environments, course of life, professions, and nature of trials of the two men, thus impressing a different stamp on the mind and heart.

I have already said that all Dr Brown's writings were "done on the quick." They are, therefore, natural and pure; full of wisdom, goodness, and truth; drawn, as it were, from the deepest recesses of a spiritual nature. In saying this I may transpose a figure of his own in writing of a worthy and learned friend, long since gone before him,—“His thoughts were as a spring of pure water flowing from the interior heights of a mountain, distilled by Nature's own cunning. . . .” And again,—“He was of the primary formation, had no *organic remains* of other men in him: he liked and fed on all manner of literature; knew poetry well; but it was all outside of him; his thoughts were essentially his own.”¹

I must now bring this address to a close. I have gone very far beyond what was my intention when I began to write, but yet far short of what I desire to have said. Indeed, I have felt oppressed while writing that I could not within a small compass do justice to the memory of Syme, my revered master; and in writing of my friend John Brown I have been reluctantly constrained to omit the notice of much in his life and work, especially beyond the twenty-third year of the Minto House Hospital days, when his genius was more fully developed, and when, as years advanced, he became more loving, loveable, and beloved.

The enduring impression made by him on the most of people who knew him has been forcibly expressed by Mark Twain in a recent letter to a friend,—“He was the most extensive slaveholder of his time, and the kindest, and yet he died without setting one of his bondsmen free.”

It is now nearly eight years since he was taken from our midst, and I am surprised that as yet no memoir has been written of him, with critical notices of the most remarkable of

¹ *Hora Subseciva*, vol. i. p. 89.

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his papers, particulars regarding intercourse and correspondence with distinguished literary, artistic, and professional men, the position which he had arrived at in his profession, the public honours which he had obtained, and some more insight respecting his social life and habits. Only some brief *In Memoriam* notices appeared shortly after his decease in the journals of the day, and lately a little bright and loving sketch, entitled an *Outline* by E. T. M'L.;¹ but I hope that something concerning his person, life and work, more worthy than these or this humble effort, may ere long supply the want, and that lovingly and artistically, just as he could have done so charmingly for one endued with a rare nature such as he himself possessed.

Part Second.

REVIEWS.

Insomnia and its Therapeutics. By A. W. MACFARLANE, M.D., Fellow of the Royal College of Physicians, Edinburgh; Examiner in Medical Jurisprudence in the University of Glasgow; Honorary Consulting Physician (late Physician) Kilmarnock Infirmary. London: H. K. Lewis: 1890.

THIS excellent work will supply a long-felt want in current medical literature. The aim of its author is a modest one—to supply some practical information on the subject with which it deals. But he has done much more than this,—for, in addition to giving the results of a large experience in cases of insomnia, he has collected a great mass of valuable and interesting facts bearing on sleep in healthy and diseased conditions.

With regard to the causation of sleep, Dr Macfarlane, perhaps wisely, does not commit himself to any one theory, and he has not considered it any part of his duty to propound a new explanation. He states, without undue partiality, most of the views which have in recent times been advanced to account for sleep. Reading between the lines, he appears to be inclined to those explanations which assume alterations in the cerebral cells to be the main factors in the production of sleep, to which circulatory changes are merely accessory. He quotes, for instance, with approval, the following words of Crichton Browne:—"The amount of blood supply to the brain and its several parts is determined, not by vascular domination, but by the functional activity of the nervous tissues." The author, however, concludes his statement of the theories by remarking "that no one of them can be accepted as settling the subtle problem."

Considering the general facts regarding insomnia, the author

¹ David Douglas, 1889.

sums up the physiological and pathological facts belonging to sleep, and the conditions which influence sleep and sleeplessness. From his own observations he presents tables embodying the causes of insomnia in a large number of cases, and afterwards deals with diagnosis, prognosis, and general treatment. These are in turn followed by a discussion of insomnia dependent upon affections of the different systems of the body.

The work is evidently that of a thoughtful physician of ripe experience. It abounds in apt illustration, and is rendered the more interesting by many touches of humour. Without doubt, it will be found to contain much that is of the highest usefulness to members of the medical profession, and we can confidently recommend its perusal by all.

Pathological Anatomy of Disease. By NORMAN MOORE, M.D., Assistant Physician and Lecturer on Pathological Anatomy to St Bartholomew's Hospital. Student's Guide Series. London: J. & A. Churchill.

WE are almost tempted to be grateful to the author of this number of the Student's Guide Series for half an hour's entertainment and wonderment, and we are so anxious not to wrong him or to misrepresent his views that his own words must be his judge. At p. 306, the changes in nutmeg liver will be found described as follows:—"Microscopic sections show that this (the naked-eye appearance) is due to a general extravasation of red blood corpuscles from the engorged hepatic veins. Some of these extravasated corpuscles retain their pigment and are dark red; others, longer extravasated, are of several shades of yellow." At p. 314 fatty infiltration of the liver is described thus:—"On microscopic examination numerous fat cells are found beneath the capsule of each lobe among the ultimate branches of the portal vein." One is disposed to ask if Dr Norman Moore ever looked through a microscope; and if this is really the pathological teaching at St Bartholomew's? If it is, we would take the liberty of suggesting to the author, for the sake of the students, the desirability of a course of pathological histology at one of the Scottish Schools if he cannot get it nearer home.

Elementary Inorganic Chemistry, Theoretical and Practical, with a Course of Chemical Analysis, and a Series of Examples in Chemical Arithmetic. By A. HUMBOLDT SEXTON, F.R.S.E., F.I.C., etc., Professor of Metallurgy in the Glasgow and West of Scotland Technical College, etc. London: Blackie & Son: 1889.

THIS book is mainly an extension of lectures delivered by the author to students at the evening classes of the "Glasgow and West of Scotland Technical College," and for such students it must be of great use as a text-book.

A Practical Guide to the Climates and Weather of India, Ceylon, and Burmah, and the Storms of the Indian Seas. By H. F. BLANDFORD, F.R.S., etc. London: Macmillan & Co.: 1889.

THIS exceedingly useful book is based upon the systematic work done by the meteorological department in India, and it is intended for the practical use of agriculturists, engineers, medical officers, pilots, and sailors generally. Whilst avoiding too many technical details in order to make the book more generally useful, Mr Blandford has not failed to give sufficient to render his work of interest to scientific men. The work is eminently practical; it is extremely well written, and it gives us a panorama of the climatic conditions which are of such great importance in a country like India. The climatic statistics which are given of 92 stations in India are exceedingly useful, and all Mr Blandford writes with regard to the climates and weather of India in relation to health and industry deserves the greatest attention, and illustrates very vividly the practical benefits to be obtained from systematic meteorological observations.

Cremation and Urn-Burial, or the Cemeteries of the Future. By W. ROBINSON. London: Cassell & Co.: 1889.

IN the two hundred pages which make up this little book, Mr Robinson does full justice to the arguments in favour of cremation. He describes the horrors of crowded graveyards and the injury to public health from our present method of sepulture. Those who wish to satisfy their taste as to the disposal of their ashes may like to look over the engravings of elegant cinerary urns which adorn the little work. Unlike the author, we have no enthusiasm to bestow on the question, whether dead bodies should be burned instead of buried. As far as we can see, the strongest argument against it is that the practice of burning the dead would give a certain advantage to the poisoner. This Mr Robinson would remove by having physicians whose duty it would be to verify the causes of death. He also seriously suggests that the stomach and a portion of one of the viscera of those who are burned might be preserved for 15 or 20 years, or thereabouts, correctly labelled, ready for the analytical chemist. Mr Robinson also quotes, apparently with approval, the observations of M. Cadet, who says that in poisoning by arsenic the mineral may be found in the burnt ashes: a very fallacious statement. The matter is mainly one of sentiment. It may be a gain, that instead of millions of coffins in shallow lairs we should have millions of urns, more or less artistic and more or less expensive, on shelves set apart for such storage; but might we not ask, if through the rapid action of a glowing furnace we decompose well-nigh the whole body into gas and vapour, what is the use of making so much ado about the

few ounces of shapeless ashes left. Why not return them to the soil, as we have returned the greater part of the organism to the air?

Nevertheless people are not easily reasoned out of what they never were reasoned into; and we are inclined to believe that the well-nigh universal custom of burying the dead will be but slightly disturbed by any amount of argument. Though there is room for reform in our burying customs, in spite of all that the cremationists have urged, we think that mother earth will still be able to receive the dead as well as to sustain the living, and that the science of the day, if called into use, is quite able to meet the dangers to health following upon earth burial.

The Scots Observer : A Record and a Review. Nos. 77, 78.

IN these excellent numbers of our able and interesting contemporary there are two articles which concern our profession. Twenty years ago, James Young Simpson died in the fulness of his mental vigour, and was buried with a mourning as true and heartfelt as Edinburgh has ever felt for any of her sons. These articles put us in mind, those of us who have memories, not to forget the man. We cannot forget the discoverer—chloroform takes care of that; nor the great gynæcologist—his memory in that direction is safe at least for a generation or two; nor the antiquary—though in a few years his researches will be merely confused with those of others. But the man, the great robust, warm-hearted personality, who was always doing something, and in a way no one else could do,—he may become—will become to the next generation—a mere *nominis umbra*. His biography hardly brings out his personality; it exaggerates one side of it and dwarfs others. Those of us who still remember should try to give to the generation following, who knew him not, some idea of what he was; and in these welcome and well-timed articles a contribution is made to that knowledge by one who must have known him well. His old students must recall the extraordinary fertility of his genius, his easy speech, his ready answers. Practitioners who called him in will remember how quickly he won the patient's confidence, and how quaint and original his treatment was; how unpunctual he was in his arrival, and yet how patient he was in details, though some other doctor might be waiting for him in the next street. His adversaries in debate—few, alas! remain—will recall the mingled sweetness and sarcasm of his too ready speech, the appalling ferocity of onslaught, delivered in a gentle, oily manner, which the victim could hardly forget or forgive till he discovered that Simpson never meant mischief, or if he did had soon forgotten it. To some sturdy and unimaginative antagonists, like Syme and Christison, forgiveness seemed impossible. To other more humorous and ready men, like Alexander Wood and Miller, such conflicts were, as a rule, the *amantium ira*. Still in every fray there was the uncomfortable feeling that Simpson's club was swung with a strong arm, but with

a boyish disregard of direction and consequence. Had he been made Principal it would have been as if a young Herakles had been asked to preside in Olympus, and it would have been a sight for gods and men. How he would have bossed the Senatus and even Edinburgh. As it was, 52 Queen Street was the place where every one worth knowing met every one else at luncheon. What would it have been had he been Principal of the University? Would we had more men like Simpson, and that their memories may be kept green.

Part Third.

MEETINGS OF SOCIETIES.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION LI.—MEETING VI.

Wednesday, 9th April 1890.—Dr UNDERHILL in the Chair.

I. *Dr J. W. Ballantyne* showed A UTERUS BICORNIS SEPTUS. The patient from whom the specimen was obtained was 28 years of age, married but sterile, and died of pernicious anæmia. The breasts were undeveloped, and there was no hair on the pubis. There was no history of menstrual pain or irregularity. The cervix uteri was single but small, and lay almost flush with the vaginal vault. The sound passed into the uterus to a distance of only $1\frac{1}{2}$ inches. At the fundus uteri there was a distinct depression between the two horns, and on cutting the uterus open, a distinct septum, broad above and narrower below, was seen extending from the fundus to a point near to the os uteri externum. Attached to the fimbriated extremity of each tube was a cyst with a long pedicle. The vagina, ovaries, and Fallopian tubes appeared to be normal.

II. *Dr Brewis* showed—(1.) A DERMOID CYST of the ovary which he had removed from a patient 58 years of age. The cyst is of large size, and its character is made evident by the presence of a single tooth in the cyst wall. (2.) DISEASED UTERINE APPENDAGES, consisting of enlarged ovaries, in one of which a corpus luteum the size of a shilling piece is seen, and greatly thickened Fallopian tubes. The patient had long suffered from severe pelvic pain, due to a retroflected uterus, underneath which lay both ovaries in Douglas' pouch, rendering the use of pessaries intolerable. Her medical attendant therefore asked Dr Brewis to remove the ovaries, in the hope of permanently relieving the patient of her symptoms. Both the above patients made excellent recoveries.

III. *Dr Brewis* read his paper on a CASE OF MYOMECTOMY FOR A LARGE FIBRO-CYSTIC TUMOUR OF THE UTERUS, which will appear in a future number of this Journal.

Dr Ballantyne congratulated *Dr Brewis* on the eminently successful termination of an operation requiring great skill and patience on the part of the operator. He quite felt that in cases like that just narrated nothing short of removal of the tumour was likely to prove of permanent value, removal of the appendages was ineffectual, and electrolysis was dangerous in the case of fibro-cystic masses. He agreed with *Dr Brewis* as regarded the difficulty of diagnosis in such cases. In one case he remembered there was a diagnosis of fibro-cystic tumour made, and when the abdomen came to be opened it was found that there was a fibroid tumour of the uterus and a cystic growth of the ovary. *Dr Ballantyne* supposed that had time allowed *Dr Brewis* would have treated the pedicle in the manner recommended by *Martin*, and dropt it into the abdomen.

Dr Underhill congratulated *Dr Brewis* on the successful issue of such a difficult and dangerous case, and one which must have required all his courage and resource. He was struck by the circumstance that the fluid did not coagulate, as it was formerly taught that the difference between the fluid from a fibro-cystic uterine tumour and that from an ovarian cyst lay in the fact that the former coagulated when cold, and the latter did not. It was a very useful observation. He agreed with *Dr Brewis* that no treatment but extirpation was of any avail in the case of large and growing fibro-cysts. He would like to know what reason *Dr Brewis* had for stating that his success in the case was partly due to the avoidance of antiseptics?

Dr Brewis thanked the Society for their kind remarks. He was of opinion that the use of antiseptics in the abdomen was frequently followed by considerable constitutional disturbance, and since he has discontinued using them the patients have recovered without rise of temperature in nearly every case.

IV. *Dr Brewis* read for *Dr W. Macfie Campbell* a NOTE UPON CONCEPTION WITH UNRUPTURED HYMEN, which will appear in a future number of this Journal.

Dr Underhill remarked that a good many cases had been recorded where pregnancy had taken place without rupture of the hymen. He had seen more than one himself. The hymen differed very much in structure in different women, being sometimes thick and tough, and not easily torn, and in others thin and sharp; and it was in women with thick, dilatable hymens that this was most apt to occur. He had seen a case under the care of *Dr Matthews Duncan* where pregnancy occurred through a minute hole, just large enough to admit a surgical probe, which had been left after the whole vaginal orifice had been sewn up in consequence of very severe tearing and sloughing from a difficult and badly-managed labour. It was probable that the uterus was pushed down nearer the vaginal orifice during coition, and that the abdomen possessed some aspiratory force tending to suck up the seminal fluid. Ciliary

movement could have nothing to do with it, as there were no cilia on the vaginal mucous membrane. Such cases as Dr Campbell's taught us to be very chary in accepting any statement of the patient's when there was a question of pregnancy at issue.

Dr J. W. Ballantyne remarked that this case was another example of the exception to the old rule, that the existence of the hymen was a sign of virginity. Many similar cases were to be found recorded in the text-books on Medical Jurisprudence. Great care required to be exercised before a definite statement with regard to virginity could be made.

V. *Dr J. W. Ballantyne* read his paper on THE RELATIONS OF THE PELVIC VISCERA IN THE INFANT, which will appear in a future number of this Journal.

Dr Underhill said the Society were greatly indebted to Dr Ballantyne for such an elaborate and laborious paper. It was not easy to criticise it, as few of them had given any special attention to the special pelvic anatomy of the infant. He could corroborate the statement that in infants the right corner of the uterus was sometimes pushed forward, probably by the coil of sigmoid flexure behind it, as he had made a similar observation some years ago, and there were several points brought out which would prove useful in practice, —the abdominal position of the bladder, the size of the rectum, and the high point in the abdomen at which the peritoneum was reflected on to the bladder in infants. He would like to know what ground Dr Ballantyne had for assuming that the full bladder in the seventh month foetus was dependent on hæmorrhage into the placenta. He could not trace the connexion.

Dr Church referred to the importance clinically of remembering that in the infant the pelvic viscera, as also the other viscera of the body, had not quite the same relation as in adult age. Apropos of this was the subject of constipation, which the physician was so often called upon to treat during the early months of the child's life, a condition disappearing when the child began to walk. Dr Ballantyne had pointed out in his paper, and illustrated in his beautiful diagrams, the common occurrence of the sigmoid flexure being situated in the brim of the pelvis, or even in the pelvic cavity, as well as lateral bendings which were sometimes met with in the rectum in its descent. It seemed very probable that such constipation might be due to pressure from or distension of the sigmoid flexure against the rectum, as well as from lateral flexures in the rectum itself. For when the child got upon its feet when about a year old, the constipation disappeared, probably because there was to some extent induced the relative position of the rectum and sigmoid as we find it in adult life. The weight of the body in walking would also render the inlet into the pelvis more horizontal, the perpendicular aspect of the inlet in the infant being an additional anatomical factor in the production of the constipation in the class of cases under consideration. Dr Church also

referred to the beautiful mechanism of the backward direction of the anus and lower end of the rectum, but thought it as much present in the adult as in the infant.

Dr Fraser Wright had listened with great pleasure and profit to *Dr Ballantyne's* paper. But he had not been able quite to understand what *Dr Ballantyne* meant by the pelvic brim in the new-born infant. He wished to ask whether in the series of observations and measurements just recorded the brim was taken as being at the level of the promontory or at the level of the third sacral vertebra. He did not agree with *Dr Ballantyne* in thinking that the case just recorded, where the uterus was rotated to the left apparently by a knuckle of bowel, offered any reason for supposing that the pregnant uterus might be rotated (as it generally was) to the right by the sigmoid flexure. For although the former was very probable, owing to the relative size of the infantile bowel and uterus, yet the latter, owing to the insignificant size of the sigmoid flexure compared with the pregnant uterus, could not at all be the likely cause of the torsion. It did not in the least support this theory of the torsion of the pregnant uterus. Nor did he think (as the President had just remarked) that *Dr Ballantyne* was warranted in assuming the secretion of urine in the fœtus he had observed to be due to the placental hæmorrhage which co-existed, and just as likely as not were merely accidentally associated.

Dr Ballantyne thanked the Society for the kind reception given to his paper. He would answer the criticisms seriatim. In reply to *Dr Underhill*, it was quite true that it was an assumption to state that the full bladder in the six months' fœtus was due to the placental hæmorrhage; but in his opinion the evidence was strong, there was accidental hæmorrhage before the child was born, therefore the functions of the placenta were interfered with, the excretory function amongst others, and so the kidneys were stimulated to secrete the urine. In reply to *Dr Church*, *Dr Ballantyne* said that constipation in infants due to the anatomical relations of the larger intestine in the pelvis was not unknown, and had been called "anatomical constipation;" no doubt this was the explanation of some obscure cases of constipation in early life. With regard to the rotation of the gravid uterus, he quite agreed with *Dr Fraser Wright* that its cause was not certainly ascertained, but if it were true that in the infant the torsion of the uterus was caused by a coil of intestine, it was the more likely that a similar cause might be in operation in the pregnant woman, for in pregnancy, as in infancy, the uterus lay partly above the plane of the brim. In speaking of the plane of the brim, *Dr Ballantyne* meant the imaginary surface, bounded posteriorly by the promontory of the sacrum,—he had only employed the conjugate inferior for the purpose of comparing together the brim diameters.

Part Sourth.

PERISCOPE.

OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. ALLAN JAMIESON, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

SOME SELECTED RECIPES OF DR UNNA.—Dr Mielck, who has compounded most of Dr Unna's formulæ for many years, has published those most approved and tested.

Gelatina Zinci Dura.

R	Gelatinæ albæ, ...	pts. 4.
	Zinci oxidi, ...	" 3.
	Glycerini, ...	" 5.
	Aquæ, ...	" 9.

Fiant lege artis gelatinæ, pts. 21; quibus si vis.

Admiscere potes.

Picis liquidæ.

vel

Ext. Cannabis Ind.

vel

Resorcini, ... ptm. 1.
vel minus.

Corporum supradictorum cave ne majorem quantitatem admiscas.

Gelatina Zinci Vulgaris.

R	Gelatinæ albæ, ...	pts. 3.
	Zinci oxidi, ...	" 3.
	Glycerini, ...	" 5.
	Aquæ, ...	" 9.

Fiant lege artis gelatinæ, pts. 20; quibus si vis.

Admiscere potes.

Sulphuris præcipitat, . . ptm. 1.

vel

Ammonię sulphoichthyolici, . ½—1.

Pasta Calcis Chlorati c. Pice.

R	Zinci oxidi, ...	pts. 4.
	Olei cadini, ...	" 4.
	Terræ silicæ, ...	" 8.
	Calcii chlorati, ...	" 2.
	Aquæ distillatæ, ...	" 20.
	Vaselini flavi, ...	" 26.

Solvantur et misceantur ut fiat pasta.

Pasta Lithargyri c. Amylo.

- ℞ Plumbi oxidi, ... pts. 6.
 Aceti, ... " 18.
 Coquendo et evaporando inter agitationem fiat massa pultiformis,
 cui refrigeratæ admisce.
 Amyli, ... pts. 5.
 Aquæ, ... " 15.
 Iterum coquendo et Glycerini, " 20.
 Admiscendo fiat lege artis ponderis partium 40.

Pasta Zinci.

- ℞ Zinci oxidi, ... pts. 10.
 Terræ siliceæ, ... 2.
 Adipis benzoati, ... 28.
 Lege artis terendo misceantur.

Pasta Zinci Mollis.

- ℞ Calcii carbonatis præcipitatæ.
 Zinci oxidi.
 Olei lini.
 Aquæ calcis ana partes æquales.
 Lege artis misceantur.

Pasta Zinci Sulphurata.

- ℞ Zinci oxidi, ... pts. 6.
 Sulphuris præcipitati, ... 4.
 Terræ siliceæ, ... 2.
 Adipis benzoati, ... 28.
 Lege artis terendo misceantur.

Spiritus Capillaris.

- ℞ Resorcini, ... pts. 5.
 Spiritus, 95°, ... 150.
 Spiritus cologniensis, ... 50.
 Olei ricini, ... 2.
 Solvantur ut fiat liquor limpidus.

Unguentum Acidi Salicylici cum Creasoto.

- ℞ Acidi salicylici, ... pts. 4.
 Creasoti faginei 8.
 Unguenti simplicis, ... 4.
 vel
 Plus usque ad 5.
 Cerae flavæ, ... 4.
 vel
 Minus usque ad 3.

Leni calore colliquendo et probe subigendo fiat unguentum.
 Unguenti et ceræ ratio inter se secundum aeris temperaturam differt.

Unguentum Compositum Chrysarobini.

- R Chrysarobini, ... pts. 5.
 Acidi salicylici, ... " 2.
 Ammoniae sulphoichthyolici, ... " 5.
 Vaselini flavi, ... " 88.
 Misce fiat unguentum.

Unguentum Compositum Pyrogalloli.

- R Acidi pyrogallici, ... pts. 5.
 Acidi salicylici, ... " 2.
 Ammoniae sulphoichthyolici, ... " 5.
 Vaselini flavi, ... " 88.
 Misce fiat unguentum.

Unguentum Compositum Resorcini.

- R Resorcini,
 Ammoniae sulphoichthyolici, $\bar{a}\bar{a}$ pts. 5.
 Acidi salicylici, ... " 2.
 Unguenti simplicis, ... " 88.
 Misce fiat unguentum.

Unguentum Pomadinum.

- R Olei theobromæ, ... pts. 2.
 Olei amygdalarum, ... " 4.
 Æstate; vel hieme usque ad " 6.
 Olei rosarum, ... " 8.

Unguentum Pomadinum Compositum.

- R Sulphuris præcipitati, ... pts. 4.
 Resorcini, ... " 2.
 Unguenti pomadini, ... " 100.
 Misceantur.

Unguentum Refrigerans.

- R Unguenti simplicis, ... pts. 12.
 Aqua rosæ,
 Aquæ naphæ, ... $\bar{a}\bar{a}$ " 2.
 Lanolini pauxillum, fiat unguentum.

Unguentum Simplex.

- R Axungie benzoatæ, ... pts. 1.
 Olei benzoati vel styracinati
 ptm. dimidiam.

Non confundendo sed conterendo commisceantur.

—*Monatshefte für praktische Dermatologie*, January 1, 1890.

CLINICAL CONVERSATIONS AT THE SAINT LOUIS HOSPITAL, PARIS.
 —*The Nature of Dermatitis Herpetiformis*.—M. Halcopean pre-

sented a typical example of dermatitis herpetiformis, and expressed the following opinion as to the nature of the disease:—"The two most likely hypotheses are those referring it to a tropho-neurosis, or to an auto-intoxication by leucomaines. In favour of the tropho-neurosis one can cite the intensity of the suffering, the symmetry of the lesions, and the possibility of the development of vesicular eruptions under the influence of the nervous system. But none of these reasons is absolute. The uneasiness can be explained by the congestion which terminates in the production of the lesions. The most perfect symmetry is seen in eruptions purely toxic, and the vesicular eruptions associated with nervous lesions possess objective characters very different from those which belong to an arthritic pemphigus. These latter exhibit, on the contrary, a striking analogy with some iodic eruptions, and one is thus led to seek for a toxic origin. But our patient has taken no drug, and it is therefore probable that in his case there is an auto-intoxication by chemical substances, those leucomaines which the organism is continually manufacturing, and whose chemical and physiological properties become modified under the influence of causes which we cannot elucidate, and which may possibly be of accidental or diathetic origin. Has this disease, as Bazin thinks, some connexion with arthritis? In answer, the antecedents of the patient are not such as consist with this view."

Mycosis or Granuloma Fungoides.—M. Bruchet showed a man, aged, in 1886, 65 years, who had since then had numerous tumours, which were established to be those of mycosis fungoides, but presenting rather remarkable features. He preserved throughout very good health. No visceral lesion was discovered, and all the functions were normal. He was never affected with any of those eczematous or lichenoid eruptions which ordinarily precede the development of the tumours of mycosis; the characteristic neoplastic formations showed themselves from the first. The earliest symptom was that of a small hemispherical nodule, raising a portion of slightly injected skin. The tumour was hard, resistant, quite painless, and sharply defined from the neighbouring parts. It was seated immediately under the skin, and was movable on the aponeurosis beneath. The nodosity increased progressively by invading the thickness of the skin, became reddish-violet, and assumed the appearance of the rind of an orange. Such a tumour steadily grew larger; in course of time it ulcerated, and ended by becoming absorbed and disappearing, leaving, as the mark of its having been there, a scarred condition of the portion of skin implicated. He had also an epididymitis following an urethral discharge, but which was not regarded as gonorrhoeal. The epididymitis was believed to be due to the same morbid process as the tumours on the skin, and this was confirmed by M. Quinquand, who had seen affections of the testicle shown by autopsy to be due to mycotic alterations in the organ.

Successful Inoculation of Lupus into the Rabbit's Eye.—M. Trousseau showed two rabbits, into the anterior chamber of one, into

the substance of the cornea of the other, he had introduced particles of lupus tissue. The portions which were introduced were totally absorbed in course of eight to ten days, but in a few days small white points showed themselves, which became true lupus nodules.

Pityriasis Rosea Maculata.—M. Fournier showed an example of this, which had been diagnosed as a syphilitic eruption at another hospital. It was situated in an unusual locality, not occurring on the trunk, but solely on the left forearm. The primitive patch described by M. Brocq was, however, present. With respect to this case M. Vidal remarked: "I have myself made this mistake between pityriasis rosea and syphilis, in the case of a patient shown to me by a colleague. I diagnosed, as he did, a commencing papulo-squamous syphilide. In course of time the development proved that it was an example of pityriasis rosea. An error is therefore possible."—*Annales de Dermatologie et de Syphiligraphie*, June, September, and November 1889.

OCCASIONAL PERISCOPE OF THE DISEASES OF CHILDREN.

By CHARLES E. UNDERHILL, M.B., F.R.C.P.E., Physician to the Royal Hospital for Sick Children.

CHILD MORTALITY IN DUBLIN.—In an interesting paper, containing a number of laboriously compiled tables, Dr Grimshaw points out the very high mortality that exists among children in Dublin. He first shows, from a comparison of the records of the decade 1877–86, that the annual death-rate per 1000 among infants under 12 months during those years was,—in England, 167·8; in Scotland, 135·3; and in Ireland, 115·5. For children under 5 years of age the rates are,—England, 58·4; Scotland, 51·4; Ireland, 36·6. We thus arrive at the broad fact that the death-rate of infants and young children is much lower in Ireland generally than it is in England or Scotland. This is probably due to the circumstance that the proportion of the population living in towns in the former countries far exceeds that in Ireland, and there is no doubt that the general death-rate of town populations is greater than that of country populations, while at early ages this excessive death-rate is much accentuated. If we now turn to the statistics of Dublin alone, we find that the mortality among children under 1 year was during these same years at the rate of 210·1 per 1000 of children living at that age, and 81 per 1000 of children under 5 years of age. We thus have the striking fact that, while Dublin is situated in a country where the death-rate of children is low as compared with neighbouring countries, yet, when compared with other large towns both in the United Kingdom and in Ireland, its average death-rate for children is the highest of all. This is also true of its death-rate for all ages. The reasons assigned for this state of matters are:—1. The large proportion of poor in Dublin (this is probable, but not definitely proved). 2. The in-

ferior house accommodation of the artisan and labouring classes.
 3. The habits of the people (especially with regard to drunkenness).
 4. Carelessness with regard to children in general, and sick children in particular. These reasons are supported by arguments and statistics.—T. W. Grimshaw, M.D., *The Dublin Journal of Medical Science*, July 1889.

CARCINOMA OF THE MEDIASTINUM IN CHILDREN.—After detailing a case of this disease in a boy of 11 years, in which the diagnosis was verified by a post-mortem examination, the author proceeds to notice other diseases of the same locality as they occur in childhood,—viz., sarcoma, lymphoma, lymphadenoma, abscess, and miscellaneous diseases,—basing his remarks on the work of Hare on this subject, and giving statistical records of sixty-seven such cases from the same source. His conclusions are:—1. Sarcoma is more frequently found in the mediastinal spaces than any other morbid process. 2. Carcinoma is the next most frequent neoplasm; the converse of these two propositions is true when applied to adults. 3. Abscess occurs next in order of frequency. 4. Lymphomata and lymphadenomata are next in order. 5. The anterior mediastinum is the part most frequently affected. 6. More males are affected than females by mediastinal disease, no matter what the variety. 7. Cancer and sarcoma are necessarily fatal. 8. Abscess ends in recovery in about one-third of the cases.—W. A. Edwards, M.D., *Arch. of Pædiat.*, July 1889.

ON LOBAR PNEUMONIA IN CHILDREN.—This disease was formerly considered as a very dangerous one in childhood, owing to its being frequently confused with lobular pneumonia. But of late years it has been recognised as one of the least fatal of the severe feverish diseases of childhood, and this view is supported by the record of thirty consecutive cases observed in the Children's Hospital at Grätz between May 1887 and May 1888. They all recovered, though several were of a severe type. The paper is illustrated by excellent temperature charts of all the cases, together with full records of each one, which show graphically the general course of the disease. A sudden onset, accompanied frequently by vomiting or convulsions, occurring as a primary disease in previously healthy children; a continuously high temperature for several days, varying from four to ten; a critical fall of temperature, sometimes taking place within twenty-four hours, sometimes more slowly; with a rapid convalescence—these are the general symptoms of the disease. The part of the lung affected was most frequently the upper lobe (in eighteen out of thirty cases)—the right upper lobe in twelve cases, the left in six. In adults the lower lobes are more often the seat of the disease. In four of the cases there were signs of pleurisy over the hepatized lung. In one case there was a relapse of the pneumonia in the other lung a few days after the child had left the hospital. Albuminuria was observed in five of the cases during the course of the disease. There are also some interesting remarks

on the occurrence of acetone during the period of the fever. The treatment employed was very simple. When the temperature rose very high, thallin and antipyrin were used, and if there was much pain, dry cupping. Careful nursing, easily digested food, and plenty of fresh air, sufficed for the rest.—Th. Hellström, M.D., *Jahrb. f. Kinderheilk.*, B. 29, H. 1.

TETANY.—This disease is characterized by tonic contraction of muscles, commonly those of the extremities, but sometimes also those of the face and trunk, produced by causes external to the nervous system, and usually of temporary duration. We thus exclude such cases of contraction as are due to disease of the brain, spinal cord, meninges, or nerve supplying the affected muscles. It is not very uncommon in childhood, is generally intermittent, and is hardly ever fatal. Males are more frequently affected than females; the cases occur for the most part singly in families, and there is no evidence of its being dependent on hereditary tendency to nervous disease. The most common causes are derangements of the digestive system, especially long-continued diarrhoea, exposure to cold, the presence of intestinal worms, and teething. It is specially apt to occur in those who are debilitated by previous exhausting disease, or who are otherwise weakly; and it occasionally has been observed in an epidemic form. The symptoms commence rather suddenly with contractions, generally symmetrical, of the upper and lower extremities; the contracted muscles are hard and painful; the contractions are specially seen in the muscles of the hands and feet, the latter being in the position of talipes equinus. The contractions do not relax much during sleep. In severe cases voluntary movement is impossible. After some hours or days the rigidly contracted muscles relax, and the disease disappears, except for some stiffness. But the remission is not of long duration, and the contractions and remissions continue to recur often for months before a permanent cure takes place. The electrical excitability of the nerves supplying the affected muscles is increased, both to the direct and induced current. When the contractions are severe, cedema sometimes occurs, especially upon the back of the hands. The disease in children almost invariably ends in recovery. The pathology is unsettled, but in the opinion of Gowers there is a primary derangement of the nerve cells of the medulla and spinal cord. The treatment consists largely in the use of the bromides and chloral, voltaic electrical currents, with, of course, correction of any antecedent general derangement. In one case small doses of sulphate of zinc and atropia seemed to effect a rapid cure.—J. Lewis Smith, M.D., *Arch. of Pædiatrics*, June, July, and August 1889.

PERITYPHLITIS IN CHILDREN.—This term is here used to cover the various inflammations which have their seat in the cæcum or appendix and their peritoneal coverings. The condition is not uncommon in children, and this frequency is perhaps due to the relatively large size of the appendix in the child. The general

symptoms are well known, viz., pain and tenderness in the right iliac fossa, the presence of a tumour in this situation, with fever, vomiting, constipation or diarrhoea, dorsal decubitus, with the legs drawn up. Usually the inflammation under proper treatment subsides, and recovery takes place; occasionally it goes on to the formation of pus, and an operation is necessary. Two cases where this happened are related, in which the abscess was opened and drained, and recovery eventually occurred, after the escape by the wound in each case of one or more faecal concretions. Relapses are frequent, and the diagnosis is not always easy. The essentials of treatment are absolute rest, fluid foods, and opium, with special avoidance of purgatives. Surgical interference is necessary if the presence of pus can be made out; or, short of that, if the disease is progressing rapidly, and signs of spreading peritonitis are present. The disease is attended by a high mortality.—F. Huber, M.D., *Arch. of Pædiat.*, October 1889.

ATROPINE IN ENURESIS.—In the same number of the *Archives* Dr W. Perry Watson strongly advocates the use of atropine in this condition, and gives short notes of thirty cases treated in this way with quite astonishing results. The formula employed was as follows:—

R Atropiæ sulph., . . . gr. j.
Aquæ destillatæ, . . . ʒj. M.

Of this mixture one drop was given for each year of the age of the child at 4 and 7 P.M. In some cases the dose was doubled, if the disease was not cured by the end of the second week. In one or two of these cases some physiological symptoms were produced.

ON HYSTERIA IN CHILDHOOD.—Much attention has been paid of late years, especially in France and Germany, to the psychical disorders of the young, and Dr M. Duvoisin has made an interesting and valuable contribution to the subject in this paper. It deals with twenty-four cases which have occurred in the Children's Hospital at Basle within the last seventeen years. After references and criticisms of the most recent writers on the subject, the author expresses his agreement with Liebermeister in thinking that hysteria among children is the product of a functional disorder of the brain itself, particularly of the gray matter of the cortex. The cases arrange themselves into three groups—(1.) The simplest forms (two cases, where the disease was characterized by alterations in character and general complainings). (2.) Hysteria without convulsive attacks, and without loss of consciousness (eleven cases). The symptoms of these were local pareses and paralyses, local hyperæsthesia or anæsthesia, aphonia, præcordial pain, etc. (3.) Convulsive attacks, with or without pronounced loss of consciousness, such as Charcot calls chorea major, hystero-epilepsy, and various atypical, casual, tonic, and clonic spasms. In the etiology two great factors are prominent,—viz., hereditary predis-

position, present in more than half the cases, and a phthisical family history. All the patients but two were anæmic; debility, insufficient nourishment, etc., were also important factors. Twenty of the cases were girls, the remainder boys. The ages varied from 7 years to 14. Full details are given of the symptoms and course of the cases while in hospital, and of their subsequent history to the present time. The disease is thus shown to have recurred in fourteen cases after they left hospital. Diagnosis is often difficult, and the utmost care is necessary to avoid mistakes. The prognosis is found to be decidedly unfavourable, but dependent to a large extent on a continuous and careful management. The treatment, which to be of any service should be begun as early as possible, is to be directed towards two points—the cure of individual symptoms, principally by means of psychical influences, and the improvement of the general health. The former object may be attained, according to the nature of the case, either by entirely ignoring the disease, or by making the patient understand, in a friendly way, the serious results that may follow; or by energetically attacking and treating the symptoms by such methods as faradisation, laryngoscopy, and the use of the œsophageal bougie. In the cases of chorea major, cold affusion, smelling salts, bromides, hydrotherapie, and amyl-nitrite were found useful; but for permanent cure a long course of general tonic and nutritive treatment is imperative.—*Jahrb. f. Kinderheilk.*, B. 29, H. 3 and 4.

Part Fifth.

MEDICAL NEWS.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The following gentlemen having passed the required examinations, obtained on 22nd ult. the Diploma of Licentiate in Public Health of the College:—Stuart Pennington Hallows, M.B., C.M., Edin., Harle Syke, Burnley; James Bruce Ronaldson, F.R.C.S., Haddington; Matthew James Oliver, M.B., C.M., Kelso; John Newton Burns, M.B., C.M., Edinburgh; Duncan Campbell Longden, M.B., C.M., Edinburgh; Straton Brougham Burns, M.B., C.M., Carlisle; John Cundell Wood, L.R.C.P. & S. Edin., Sunderland; Colin Mackenzie, M.B., C.M., Tain.

THE WILLIAM F. JENKS MEMORIAL PRIZE.—The Second Triennial Prize, of four hundred and fifty dollars, under the deed of trust of Mrs William F. Jenks, will be awarded to the author of the best essay on "The Symptomatology and Treatment of the Nervous Disorders following the Acute Infectious Diseases of Infancy and Childhood."—The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with Obstetrics, or the Diseases of Women, or the Diseases of Children;" and that "the Trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their

judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said Trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia." The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or if in a foreign language accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U.S.A., before January 1, 1892, addressed to Louis Starr, M.D., Chairman of the William F. Jenks Prize Committee. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The Committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year. The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

MESSRS BURROUGHS, WELLCOME, & Co. have sent us one of their Wallich's Improved Inhalers, a simple but very ingenious instrument which enables prescribers to dispense with the usual addition of magnesia carbonate to the essential oils when these are ordered for inhalation. In form it is like an ordinary hot-water jug, but with the handle hollow and perforated at its upper end. The mouth of the inhaler is stoppered by a cork in which is a small glass bell jar containing a sponge, on which the medicament prescribed is dropped. A removable lid covering the cork and a glass mouth-piece connected by rubber tubing with the bell jar complete the apparatus. When required, a naso-oral cup may be fitted in place of the mouth-piece. Among other advantages it is claimed for this inhaler that the continued current of air rushing into the jar through the orifice in the handle drives off a regular current of steam which displaces the medicament to be inhaled, and that the full benefit of it is thus obtained. We have had opportunities of trying the inhaler with patients, and are quite certain that it is a distinct advance on previous inhalers, and that by no means too much is claimed for it by the makers.

OBITUARY.

SAMUEL GRIERSON, M.R.C.S.

At Edinburgh, on the 19th April, there passed away Samuel Grierson, late Medical Superintendent of the Border Counties Asylum. Dr Grierson was a native of Kirkcudbrightshire. He commenced the study of medicine somewhat later than usual.

For several years he acted as assistant to Dr Hoffman, a medical practitioner in Margate. After studying at Edinburgh for four years, he took in 1860 the diploma of M.R.C.S. In the same year he became Assistant Physician in the Southern Counties Asylum under Dr Gilchrist. Here he remained for about seven years, after which he was appointed Medical Superintendent of the District Asylum for Roxburgh, Berwick, and Selkirkshire. At that time the pauper lunatics from these counties were kept at Millholme House, Musselburgh. Dr Grierson made the best of the scanty accommodation and scanty appliances there, but it was a welcome change when, in 1873, he was able to take his patients to the new Asylum built under his direction on the shoulder of the Eildons above Melrose. Dr Grierson gave his whole time and thoughts to further the welfare of those under his charge. Every department of his establishment received its due attention; but his main endeavour was always to bring the resources of medicine and hygiene to improve the health of his patients and to relieve their distresses.

To go through his daily work was to him both a duty and a pleasure. It never descended into a routine: he never hurried it through. In his own department of mental diseases he was learned and sagacious; always calm and measured in his judgment, his prognosis was to be relied on.

Besides being well read in medicine, Dr Grierson took a scholarly interest in literature and history, and had an excellent library. In manner he was stately, courteous, and genial, though somewhat retiring. As became a psychologist, Dr Grierson was a shrewd observer of peculiarities of character. His stores of information came out in conversation; but he very rarely spoke at medical societies.

Though he had acquired an English accent during his residence at Margate, in talking to his patients he often used the familiar dialect dear to Scottish ears. His compassion and his patience were never exhausted. Though lunatics are not, as a rule, a grateful class of patients, deep sorrow would be felt in many hearts in the Border Counties when the news came at last that Dr Grierson was dead. But his work went far too deep below the surface for his merits to be properly appreciated save by a few. It is about five years ago since the first symptoms of phthisis appeared. He was induced in the winter of 1885-6 to try a sojourn in Egypt; but though he acknowledged some benefit from the change, he never again left his own country. About four years ago he gave up his appointment as Superintendent, being still retained as Consulting Physician to the Asylum. During last winter his strength was evidently declining, in spite of the kind care of his medical attendant Dr M'Gillivray, who was unwearied in his efforts to relieve what the resources of the healing art were unable to arrest. At the time of his death Dr Grierson was sixty-two years of age. He leaves a widow, one son, and three daughters.

INDEX.

- A**
- Abdomen, foreign body in, 963.
 Abrus precatoria, 1080.
 Académie de Sciences, 302.
 Accommodation, diphtheritic paralysis of, by W. G. Sym, M.D., 411.
 Acne, ovarian, potassium bromide in, 285, 493; varioliformis, 289; keloid, 579.
 Acromegaly, 591.
 Addison's disease, case of, 164.
 Address to the members of the Royal Medical Society, by Sir Douglas Mac-lagan, 498.
 Address, valedictory, to the Edinburgh Medico-Chirurgical Society, by John Smith, M.D., 608.
 Address to the Edinburgh Obstetrical Society, by C. E. Underhill, M.B., 738, 831.
 Agaric acid, 569.
 Ague, blood organisms in, 678.
 ALLINGHAM, H. W., F.R.C.S., the treatment of internal derangements of the knee-joint by operation, *rev.*, 850.
 Alopecia, cicatricial, 485; areata, 575.
 Amaurosis, transitory, from lead poisoning, 580.
 Amputations, the technique of multiple, 195.
 Amyl nitrite in the "status epilepticus," 393.
 Anæsthetics in dangerous cases, 196; in naso-pharyngeal operations, 490; debate on, *rev.*, 544.
 ANDERSON, HENRY SCOTT, M.D., obituary notice, 979.
 Angioma, cavernous, 398.
 Ankle-joint, on excision of the, by Arthur Neve, F.R.C.S.E., 340.
 Annual, medical, and practitioner's index (1889), *rev.*, 63; (1890), *rev.*, 1065.
 Antifebrin in epilepsy, 392; in quinsy, 677.
 Antipyrin, poisoning by, 87; in urticaria, 392; in chorea and tetanus, 392; contra-indicated during menstruation, 493; in renal disease and diabetes, 566; rash, 973.
 Antiseptic dressings, 95.
 Apollinaris water, 199; Besant's advertisement of, 1088.
 Army medical schools, 384.
 Army medical staff, 302, 382, 885.
 Arran tragedy, the, by Harvey Littlejohn, M.A., M.B., 705.
 Arsenic in bullous diseases of the skin, 578.
 ASHBY, HENRY, M.D., notes on physiology, *rev.*, 61.
 Asthma, menthol in, 393; lobeline in the treatment of, 394.
 Asylum report, Royal Edinburgh, *rev.*, 453; Crichton Royal, *rev.*, 453; Derbyshire County, *rev.*, 453; Cumberland and Westmoreland, *rev.*, 453; Newcastle-upon-Tyne, *rev.*, 453.
- ATKINSON, F. P., M.D., the origin, spread, and decline of infectious disease, 130; the prevention of epidemic disease, 811.**
Atlas of illustrations of pathology (Sydenham), *rev.*, 259.
Atropine as a preventative of shock, 682; in enuresis, 773, 1177.
- B**
- BALFOUR, GEORGE W., M.D., the symptoms and sequelæ of the senile heart, 201, 594, 889, 1089.
 BALLANTYNE, J. W., M.D., on intra-uterine rickets, 1111; on the relations of the pelvic viscera in the infant, 1168.
 BARBOUR, A. H. F., M.D., on the light which sectional anatomy will throw on the mechanism of labour, 28.
 BARRY, Dr, report on an epidemic of small-pox at Sheffield, *rev.*, 355.
 Bathgate memorial prize, 587.
 BELL, JOSEPH, F.R.C.S.E., note on a case of loss of memory following cranial injury, 543.
 BENNETT, W. H., F.R.C.S., clinical lectures on varicose veins of the lower extremities, *rev.*, 654.
 Beri-beri, 680.
 BERNARD, A. G., M.R.C.S., on the causes, treatment, and cure of stammering, *rev.*, 855.
 Bernd's physician's registers, *rev.*, 63.
 BERRY, GEORGE A., M.B., diseases of the eye, *rev.*, 55; periscope of ophthalmology, 580.
 Bladder, blood-clot in, 160; Dr Haultain on exfoliation of the, 672, 1122; rupture of, 965; surgery of the, 585.
 BLANDFORD, H. F., F.R.S., a practical guide to the climates and weathers of India, Ceylon, and Burmah, and the storms of the Indian Seas, *rev.*, 1164.
 Blood-letting, the departed age of, by a Provincial M.D., 822.
 BOE, Dr J. S., obituary notice, 886.
 Bone, an inquiry into the regeneration after sub-periosteal resection of a portion of the shaft of a long, by Ernest F. Neve, M.D., 719; transplantation of, 479.
 Book-keeping, medical, 857.
 BOWLEY, A. A., F.R.C.S., injuries and diseases of nerves, and their surgical treatment, *rev.*, 854.
 BOYD, FRANCIS D., M.B., case of congenital absence of the rectum, 529.
 BOYD, JOHN, M.D., Scandinavian studies, 230; Ferrán's anti-cholera vaccination, 639, 726.
 Brain, case of cortical lesion of the, 668, 670; tumour of, 484.
 Braithwaite's retrospect of medicine, *rev.*, 452, 1065.

- BRACKENRIDGE, D. J., M.D., the present epidemic of so-called influenza, 996.
 BRENNER, the late HERMANN, 984.
 BREWSTER, Dr, case of myomectomy for a large fibro-cystic tumour of the uterus, 1166.
 Broad ligaments, the pathological importance of the, by Lawson Tait, F.R.C.S., 1, 97.
 BROOK, Dr L., on general cutaneous eruptions which are accompanied with redness and desquamation, 814.
 BRODHURST, BERNARD E., F.R.C.S., the treatment of lateral curvature of the spine, *rev.*, 251.
 Bromoform in whooping-cough, 870.
 Brown, Dr John, his life and work, by Dr A. Peddie, 1056, 1148.
 Brown-Séquard, Dr, testicle fluid, 394.
 Bucket, the old oaken, 495.
 BULL, EDWIN G., M.B., occasional periscope of surgery by, 396.
 Bullet, Lebel-rifle, wounds, 396.
 BURMAN, C. CLARK, L.R.C.P. and S.E., nocturnal paroxysms in whooping-cough, 523.
 Burns, cause of sudden death after extensive, 785.
 Burroughs, Wellcome, & Co.'s new remedies, 587, 790, 1179.
- C
- CADDELL, FRANCIS, F.R.C.S., periscope of syphilology and genito-urinary diseases, 90, 394, 974.
 Cesarean operation, first in Great Britain, 887.
 Caffeine in the treatment of adynamic conditions, 567.
 CAIRD, FRANCIS M., F.R.C.S., on the treatment of gangrenous bowel in strangulated hernia, 766, 826.
 Calculus, vesical, supra-pubic lithotomy, by W. J. Naismith, M.D., 711.
 CAMPBELL, Dr W. M., on conception with unruptured hymen, 1167.
 Canadian Medical Association, 94.
 Cancer, what is? 584.
 Canticle sung at annual dinner of the Scottish Midland Western Medical Association, 588.
 CARGILL, ALEXANDER, health in hand-writing, 627.
 Cartilage, outgrowths round articular, 682.
 Cataract, dark, 275.
 CATHCART, C. W., M.B., and CAIRD, FRANCIS M., M.D., a surgical handbook, *rev.*, 153; the place of systematic lectures in the teaching of medicine and surgery, 1070, 1128.
 Canterizer, a minimum, 289.
 Cell, the physiology of the, considered in relation to its pathology, by G. Sims Woodhead, M.D., and G. E. Cartwright Wood, M.D., 936, 1036, 1133.
 Cerebral palsies of children, 293.
 Chancre, influence of erysipelas on, of upper lip, 485; soft, exhibiting fictitious induration, 485.
 CHAPMAN, J. M., M.D., periscope of gynaecology and midwifery, 491.
 Cheyne-Stokes respiration, 364.
 CHEYNE, W. WATSON, F.R.C.S., suppuration and septic diseases, *rev.*, 852.
 CHENE, Prof. JOHN, hospital experiences, 43, 276.
 Children, occasional periscope of the diseases of, by C. E. Underhill, M.B., 290, 1174.
 Children, the colic affection in, by R. A. Gibbons, M.D., 321, 420.
 Chloralism, 803.
 Chlorine as a disinfectant, 1084.
 Chloroform inhalation, effects of prolonged, 883.
 Cholera, the treatment of, by subcutaneous injections of perchloride of mercury, 677.
 Chorea major, 362.
 Chorion, myxomatous degeneration of, 1074.
 Christia, 1087.
 Circumcision and heredity, 976.
 CLIFFORD, EDWARD, Father Damien, *rev.*, 652.
 Climate and season, influence of, on the manifestation of normal and abnormal nervous activity, 789.
 Clinical report of cases, by Dr Oland Muirhead, 49.
 CLOUSTON, T. S., M.D., diseased cravings and paralyzed control, 508, 689, 793, 985.
 COBBAN, J. MACLAREN, master of his fate, *rev.*, 759.
 Cocainism, 806.
 Coccygodynia, 397.
 Cod-liver oil, 1083.
 Coeliac affection in children, by R. A. Gibbons, M.D., 321, 420.
 Coffee, antiseptic properties of, 788.
 Colotomy, inguinal, 684.
 Congress, international medical, 301, 885.
 Congress, French, of surgery, 302, 747.
 Consumption on shipboard, 194.
 CORNETT, Dr GEORGE, ueber das verhalten der tuberkelbacillen im thierischen organismus unter dem einfluss entwickelungs- und ungeschwemmender stoffe, *rev.*, 57; die verbreitung der tuberkelbacillen anasserhalb des körpers, *rev.*, 57.
 Correspondence, 496, 591, 685, 887.
 CRAIG, WM., M.D., monthly report on the progress of therapeutics, 181, 392, 566, 676, 772, 870, 1079.
 Cravings, diseased, and paralyzed control, by T. S. Clouston, M.D., 508, 689, 793, 985.
 Creasote in phthisis, 192.
 CREIGHTON, CHARLES, M.D., the natural history of cow-pox and vaccinal syphilis, *rev.*; "Vaccination," article in the Encyclopædia Britannica, *rev.*; Jenner and vaccination: a strange chapter of medical history, *rev.*, 142, 249, 347, 656, 953.
 CROOM, J. HALLIDAY, M.D., retroversion and retroflexion of gravid uterus, 905; on some points in the technique of laparotomy, 861, 1012.
 Croup, diphtheritic, 363.
 CULLINGWORTH, CHARLES J., M.D., a manual of nursing, *rev.*, 951.
 CUNNINGHAM, Prof. D. J., M.D., a manual of practical anatomy, *rev.*, 847.
 Curette, new uses for the sharp (uterine), 491.

Cutaneous, general, eruptions which are accompanied with redness and desquamation, by Dr L. Brocq, 814.
Cystoscope, the electric, by David Wallace, F.R.C.S., 712, 860.
Cystotomy, supra-pubic, 684.

D

DAWE, W. H., the wife's help to Indian cookery, *rev.*, 758.
DAY, WM. HENRY, M.D., headaches, their nature, causes, and treatment, *rev.*, 156.
Dermatitis herpetiformis, 1172.
Dermatology, occasional periscope of, by W. A. Jamieson, M.D., 187, 284, 484, 572, 775, 878, 972, 1170.
Dermoliz, unguentum, 1087.
Diarrhoea in Huddersfield, 1085.
Diphtheria in Berlin, 1084.
Dipsomania, 689.
DOUGLAS, KENNETH M., M.D., fat hernia in the inguinal region, 918, 1069.
Drunkards, habitual, 64, 857.
Dublin, child mortality in, 1174.
DUCKWORTH, Sir DYCE, M.D., a treatise on gout, *rev.*, 943.
DYKE, J. EATON, and DUDLEY STUART, manual of the public health acts, *rev.*, 856.

E

Ear, suppuration of middle, 783.
Ehstein on gout, 85.
Eczema, treatment of scaly, of the back of the hand, 190; treatment of, by resorcin compresses, 576; tar in the treatment of, 779; Pick's treatment of, 972.
Education and examinations, medical, information regarding, 370.
Elbow, treatment of fractures at the, 198.
Electricity, the treatment of pelvic diseases by, 1075.
Electrolysis in urethral stricture, 976.
ELLIS, T. S., notes on the nature and treatment of flat-foot, 624; the human foot, *rev.*, 653.
Empyema, the surgical treatment of, by Albert Morrison, M.D., 123, 368.
Enuresis, atropine in, 773, 1177.
Ephedrine, 581.
Epidemic disease, the prevention of, by F. P. Atkinson, M.D., 811.
Epilepsy, a case of traumatic, cured by trephining, by Ch. Féré, 435; ligature of vertebral artery for, 784; solanum carolinense in, 870.
Epithelioma, treatment of, by chlorate of potass, 190.
ERNEST F. GUSTAV, a guide to the selection and adaptation of orthopedic apparatus, *rev.*, 756.
Erythema, gonorrhoeal, 288.
Eucalyptus in scarlet fever, 874.
Euxaline, a new analgesic, 181.
Examination papers for candidates for H.M. medical services, 889.
Eye, action of light on the anterior parts of the, 581.

F

Falsetto voice, cure of the, 490.

Favus, a new treatment of, 574; persistent vitality of, 778.

FELKIN, R. W., M.D., occasional periscope of diseases of the tropics, 678; does the increase of civilisation render the occurrence of sepsis more common? 113, 174; hypnotism, or psycho-therapeutics, 240, 330, 437, 532, 750, 923, 1023; on the geographical distribution of some tropical diseases and their relation to physical phenomena, *rev.*, 948.
FENWICK, E. HURRY, the electric illumination of the bladder and urethra, *rev.*, 752.
FÉRÉ, CH., a case of traumatic epilepsy cured by trephining, 435.
FERGUSON, J. HAIG, M.B., on a variety of post-partum shock, its nature, cause, and prevention, 33, 83.
Ferrán's anti-cholera vaccination, by Dr John Boyd, 639, 726.
Fibroid tumour, 770.
FINLAYSON, JAMES, M.D., account of the life and works of Maister Peter Lowe, the founder of the Faculty of Physicians and Surgeons, *rev.*, 562.
Fistula, rapid cure of anal, 883.
Flat-foot, clinical lecture on, by A. G. Miller, F.R.C.S., 428; notes on the nature and treatment of, by T. S. Ellis, 624; excision of scaphoid for, 683.
Fœtus, exomphalic, 769.
Folliculitis, destructive, of hairy regions, 188, 363.
FOULIS, JAMES, M.D., on the only way of raising the tongue, the epiglottis, and the aryteno-epiglottic folds at one and the same time, 19, 132, 161.
FOY, GEORGE, F.R.C.S., anaesthetics, ancient and modern, *rev.*, 952.
Fracture, rabbit bone for ununited, 784.
Frontal sinus, trephining of, 1067.

G

Ganglion of wrist, 682.
GARRIGOU-DESSAENES, Dr, du catarrhe chronique hypertrophique et atrophique des fosses nasales, *rev.*, 553.
GAY, GEORGE W., M.D., the comparative merits of tracheotomy and intubation in the treatment of croup, *rev.*, 553.
GIBBONS, R. A., M.D., the coeliac affection in children, 321, 420.
Glands, strumous, 164, 260.
Glasgow, Medico-Chirurgical Society of, 495.
Glancoma, chronic, with reference to the effects of iridectomy, 582.
Glycerine as a local application, 570.
Glycerites, 670.
Goitre, Kocher on cases of, 399, 884; ligation of arteries in, 786.
Golf match between Royal College of Physicians and Royal College of Surgeons, 1086.
Gonorrhoea, antiseptic treatment of acute, 397; salicylates in, and gleet, 781; carbolic acid and oil of peppermint in, 781.
GOODELL, Prof. WM., lessons in gynaecology, *rev.*, 754.
GORHAM, JOHN, M.R.C.S., tooth extraction, *rev.*, 452.

- GOUSENHEIM, Dr A., et PAUL TISSIER, phthisie laryngée, *rev.*, 554.
 Gout, Ebstein on, 85.
 GRIERSON, SAMUEL, M.R.C.S., obituary notice, 1179.
 GUELFA, Dr G., nouvelle méthode de traitement de la diphtérie, *rev.*, 552.
 Gunshot, wind injuries from, 685.
 Gynaecology and midwifery, periscope of, by J. Milne Chapman, M.D., 491.
- H
- Hæmorrhage from palm, 662.
 Hair restorers, 573.
 HAMILTON, Prof. D. J., a text-book of pathology, *rev.*, 555.
 HANDFORD, H., M.D., graphic clinical charts, *rev.*, 157.
 Handwriting, health in, by Alexander McGill, 627.
 HARE, H. A., M.D., the pathology, clinical history, and diagnosis of affections of the mediastinum other than those of the heart and aorta, *rev.*, 558.
 HART, D. BERRY, M.D., mitral stenosis and labour, 84, 110; the minute anatomy of the placenta in extra-uterine gestation, 344, 481.
 HAULTAIN, Dr, on exfoliation of the bladder, 672, 1122.
 Health, periscope of public, by Harvey Littlejohn, M.B., 786, 1084.
 Heart, the symptoms and sequelæ of the senile, by George W. Balfour, M.D., 201, 594, 889, 1089; specimen of rupture of, 480; ante-mortem clot in, of an infant, 866.
 HENDERSON, W. A., L.R.C.P. and S. Ed., therapeutic notes, 570.
 Hernia, a case of obturator, by W. Scott Lang, F.R.C.S.E., 522; radical cure of inguinal, 682; on the treatment of gangrenous bowel in strangulated, 782; on the treatment of gangrenous bowel in strangulated, by F. M. Caird, F.R.C.S. Ed., 766, 826.
 Hernia, fat, in the inguinal region, by K. M. Douglas, M.D., 918, 1069.
 HEWITT, FREDERICK, M.A., M.D., select methods in the administration of nitrous oxide and ether, *rev.*, 357.
 Hip, dislocation of, complicated with fracture of the femur, 584; early excision of, 782; treatment of congenital dislocation of, 786.
 HORSLEY, REGINALD, M.B., cyst of the posterior extremity of the inferior turbinated body, 631, 860.
 Hospital experiences, by Prof. John Chiene, 43, 276.
 Hospitals, dispensaries, etc., in connexion with the medical schools of Scotland, 378.
 HOUSTON, Brigade-Surgeon J. MACDONALD, obituary notice, 1088.
 HUMPHREY, LAURENCE, M.A., M.B., a manual of nursing, *rev.*, 951.
 HUTCHINSON, JONATHAN, LL.D., archives of surgery, *rev.*, 154, 559.
 HUTCHINSON, J., jr., aids to ophthalmic medicine, *rev.*, 562.
 HYDE, SAMUEL, L.R.C.P., Buxton, its baths and climate, *rev.*, 759.
 Hydræotin, 482.
 Hydrocele, radical cure of, 784.
 Hydrocephalus, some cases of intra-uterine by C. E. Underhill, M.B., 218; by Wm. F. Murray, M.D., 339; note on a case of, with meningocele, by G. Owen C. Mackness, M.D., 922.
 Hydrocyanic acid, 872.
 Hydronephrosis and renal atrophy, especially as resulting from functional disturbances of micturition, 790.
 Hydroxylamin chloride in diseases of the skin, 486.
 Hymen, annular, 280; conception with unruptured, 1167.
 Hypnotism, or psycho-therapeutics, by R. W. Felkin, M.D., 240, 330, 437, 532, 730, 923, 1023; Otto Wetterstrand on, 230.
 Hysteria in childhood, 1177.
- I
- Ichthyol, thiol a substitute for, 575; strength of, 973.
 Indian medical service, 385.
 Infants, mortality among artificially fed, 789.
 Infectious disease, the origin, spread, and decline of, by F. P. Atkinson, M.D., 130.
 Influenza, the present epidemic of so-called, by D. J. Brakenridge, M.D., 996; examination of blood in, 874; Rosenbach's experiences of, 876; micro-organisms in sputa of, 968; microscopy of blood in, 969; bacteria of, 971.
 Insufflator, a new, 489.
 Intestinal obstruction, discussion on, 460; case of, successfully treated by laparotomy, by A. G. Miller, F.R.C.S. Ed., 915; diagnosis of, 397.
 Intestinal plates, 760.
 Intubation, 363, 684.
 Iodoform, anti-tubercular power of, 784.
 Irrigation and drainage of gunshot injuries and compound fractures, 783.
- J
- JAMES, ALEX., M.D., pleurisy and pleuritic effusion from the anatomico-physiological standpoint, 223, 272.
 JAMES, B. W., M.D., American resorts, with notes upon their climate, *rev.*, 857.
 JAMES, PROSSER, M.D., the therapeutics of the Kronenquelle water, *rev.*, 156; a guide to the alterations in the British Pharmacopœia (1885), *rev.*, 755.
 JAMIESON, W. ALLAN, M.D., occasional periscope of dermatology, 187, 284, 484, 572, 775, 878, 972, 1170.
 Jaundice, pilocarpine in, 872.
 Jaw, new operation for excision of upper, 784.
 Jenks, W. F., prize, 1178.
 Jenner's advice to the Queen, 199.
 JENNINGS, C. E., F.R.C.S.E., cancer and its complications, *rev.*, 557.
 JOHNSON, GEORGE, M.D., an essay on asphyxia, *rev.*, 1064.
 JOHNSTON, R. M'KENZIE, M.D., notes on the use of papain in ear diseases, 621.
 Joints, antiseptic opening of, for loose bodies, 883.
 JONES, JOSEPH, M.D., medical and surgical memoirs, *rev.*, 949.

K

- KNEATING, J. M.**, cyclopædia of the diseases of children, *rev.*, 550.
KRITH, SKEENE, M.B., introduction to the treatment of disease by galvanism, *rev.*, 653; cases of ovariectomy, 809.
Kemp & Co.'s prescribers' pharmacopœia of new drugs, *rev.*, 756.
KERR, NORMAN, M.D., inebriety, its etiology, pathology, treatment, and jurisprudence, *rev.*, 757.
KHORY, RUSTOMJEE NASERWANJEE, M.D., the Bombay materia medicæ and their therapeutics, *rev.*, 155.
Kidney, removal of, 682.
Knee-joint, two suggestions for improving the operation of excision of the, for strumous disease, by A. G. Miller, M.D., 41; dislocation of, 159; resection of, 884.

L

- Labour**, on the light which sectional anatomy will throw upon the mechanism of, by A. H. F. Barbour, M.D., 28; mitral stenosis and, by D. Berry Hart, M.D., 84, 110; case of heart disease complicating, successfully treated by nitrite of amyl, by W. Fraser Wright, M.B., 278, 540; notes on a case of heart disease complicating pregnancy and, by G. O. C. Mackness, M.D., 770; disposition of pubic segment in pregnancy and, 965.
Lacrimal glands, extirpation of, for incurable epiphora, 582.
LAFAN, T., M.C.P.I., the medical profession of the three kingdoms in 1887, *rev.*, 750.
LANG, W. SCOTT, M.D., a case of obturator hernia, 522.
Lanoline, 304; does the human cutaneous fat contain? 577, 790.
Laparotomy, on the indications for, in acute processes, 494; or enterostomy, 583; on some points in the technique of, by J. Halliday Croom, 861, 1012.
Laryngeal growths, treatment of, 490.
Laryngology and rhinology, periscope of, by J. Maxwell Ross, 488.
Larynx, epithelioma of, 480; malignant disease of the, by G. Hunter M'Kenzie, M.D., 446.
LAVAUX, J. M., lavage de la vessie sans sonde, *rev.*, 259.
Lectures, place of systematic, in the teaching of medicine and surgery, by C. W. Cathcart, M.B., 1070, 1128.
LEIDY, Prof. JOSEPH, an elementary treatise on human anatomy, *rev.*, 847.
Leprosy, 87, 287; in India, 199.
LESLIE, GEORGE, M.B., on the cure of facial neuralgia, odontalgia, and allied neuroses, 614, 761.
Leukoplakia, treatment of, 575.
Lichen planus, itching in, 579.
Lippincott's magazine, *rev.*, 1065.
LITTLEJOHN, HARVEY, M.A., M.B., the Arran tragedy, 705; periscope of public health, 786, 1084.
Liver, the surgery of the, by Lawson Tait, F.R.C.S., 305, 401; syphilitic, in infant, 965.

- Lobeline** in the treatment of asthma, 394.
LOCKWOOD, C. B., F.R.C.S., Hunterian lectures on morbid anatomy, pathology, and treatment of hernia, *rev.*, 849.
LONGMORE, Sir THOMAS, on wind-injuries from gunshot, 685.
L'OSTE, Mrs., the treatment of female inebriety in the cultured classes, *rev.*, 758.
Lupus tuberculosis, acute nodular disseminated, 187; successful inoculation of, into rabbit's eye, 1173.
Lymphadenoma of the neck, 196.

M

- MACALISTER, Prof. A., M.D.**, a text-book of human anatomy, *rev.*, 847.
MACFARLANE, A. W., M.D., insomnia and its therapeutics, *rev.*, 1162.
M'KENDRICK, Prof. J. G., M.D., text-book of physiology, *rev.*, 649.
MACKENZIE, G. HUNTER, M.D., malignant disease of the larynx, 446.
MACKNESS, G. O. C., M.D., notes on a case of heart disease complicating pregnancy and labour, 770; notes on a case of hydrocephalus with meningocœle, 772, 922.
M'LACHLAN, JOHN, M.D., applied anatomy, surgical, medical, operative, *rev.*, 451.
MACLAGAN, T. J., M.D., fever, a clinical study, *rev.*, 151.
MACLAGAN, Sir DOUGLAS, M.D., address to the members of the Royal Medical Society, 498.
M'LAUREN, JOHN SHAW, M.A., M.B., two cases of unreduced dislocation of the shoulder with unusual history, 14.
MACNAMARA, C. N., leprosy a communicable disease, *rev.*, 651.

M

- Macule ceruleæ**, 187.
MADDOX, E. E., M.D., the clinical use of prisms, *rev.*, 652.
Magistrate, medical, 685.
Malarial parasite in tertian ague, 87; fever, treatment of, 571; fever, influence of, on the puerperium, 680; fevers, use of sunflower in, 773.
Malignant growths of tongue and lips, 775, 883.
Mammillaplasty, 683.
MAPOTHER, E. D., M.D., papers on dermatology, *rev.*, 450.
Marriage, suit for nullity of, 780.
Mediastinum, cancer of, in children, 1175.
Medical periscope, by Francis Troup, M.D., 85, 183, 482, 874, 969.
Memory, note on a case of loss of, following cranial injury, by Joseph Bell, 543.
Menthol in asthma, 393.
Mercury, biniodide in throat affections, 489; in tænia of a syphilitic patient, 971.
Methæstin, a new antipyretic, 182.
Mickulicz's operation, case of, 157.
Micro-organisms in the air of hospitals, 787.
Microscope lamp, 1067.
MILLER, A. G., F.R.C.S., two suggestions for improving the operation of excision of the knee-joint for strumous disease, 41; case of fracture of base of skull, 158; surgical periscope, 194, 295, 583, 682, 782,

- 882; clinical lecture on flat-foot, 428; case of intestinal obstruction successfully treated by laparotomy, 915.
- MILTON, J. L., on the pathology and treatment of diseases of the skin, rev., 1062.
- Moles, treatment of hairy, 577.
- MONET, ANGEL, M.D., the student's textbook of the practice of medicine, rev., 62.
- MOORE, NORMAN, M.D., pathological anatomy of disease, rev., 1163.
- MORGAN, A. KIRBY, M.R.C.S., Bournemouth as a health resort, 63.
- MORISON, ALBERT, M.B., C.M., the surgical treatment of empyema, 123, 368.
- Morphia, elimination by the stomach of, injected subcutaneously, 184.
- Morphinomania, 792.
- MOXON, WALTER, and SAMUEL WILKS, lectures on pathological anatomy, rev., 1063.
- MUIR, THOMAS, M.A., Watt's dictionary of chemistry, rev., 757.
- MUIRHEAD, DR CLAUD, clinical report of cases at Edinburgh Royal Infirmary, 49.
- MURRAY, R. MILNE, M.B., on the treatment of pelvic diseases by electricity, 1075.
- MURRAY, WILLIAM F., M.D., case of intra-uterine hydrocephalus, 339.
- MURRELL, WILLIAM, M.D., masso-therapeutics, rev., 155.
- Muscular, progressive, atrophy in child, 859.
- Mycosis fungoides, 1173.
- Mydriatic, a new (ephedrine), 581.
- Myomectomy for fibro-cystic tumour of uterus, 1166.
- N
- NAISMITH, W. J., M.D., vesical calculus, supra-pubic cystotomy, recovery, 71.
- Naphthalin in typhus abdominalis, 483; in typhoid fever, 773.
- Naphthol, camphorated, in the treatment of tubercular ulcerations, 183.
- Nasal cavity, osteomata of the, 488.
- Navy medical department, 388.
- Nephritis and albuminuria in typhoid fever of children, 293.
- Nerve, excision of superior maxillary, for tic douloureux, 296.
- Nerves, operation to reach the gustatory and inferior dental, without opening into the mouth, by D. Wallace, F.R.C.S., 238.
- Neuralgia, on the cure of facial, by George Leslie, M.B., 614, 761.
- NEVE, ARTHUR, F.R.C.S.E., on excision of the ankle-joint, 340.
- NEVE, ERNEST F., an inquiry into the regeneration after sub-periosteal resection of a portion of the shaft of a long bone, 719.
- Nitrate of silver in purpura hemorrhagica, 393.
- Nurses, Queen Victoria's Jubilee Institute for, Scottish Branch, 1086.
- O
- Obituary notices—ANDERSON, HENRY SCOTT, M.D., 379; BOB, Dr J. S., 886; BREHMER, HERMANN, 984; GRIERSON, SAMUEL, M.R.C.S., 1179; HOUSTON, Brigade-Surgeon J. MACDONALD, 1088; PAGE, DAVID, M.D., 982; RIGGOLD, 589; THOMSON, Dr ALEX., 399; TRAIL, JOHN, F.R.C.S., 96.
- Ophthalmology, periscope of, by George A. Berry, M.B., 580.
- Oppenheimer's liquor canthophyllia et polysatilla co., 303.
- OSLER, WM., M.D., the cerebral palsies of children, rev., 452.
- Ossifluent abscess, 194.
- Ostitis, strumous, salicylic acid in, 883.
- Ovariectomy, cases of, by Skene Keith, M.B., 809.
- P
- Pagan, case of Dr Samuel Alex., 685.
- PAGE, DAVID, M.D., obituary notice, 982.
- PAGE, R. C. M., M.D., a handbook of physical diagnosis of diseases of the organs of respiration and heart, and of aortic aneurism, rev., 149.
- Papain, notes on the use of, in ear diseases, by R. M'Kenzie Johnston, M.D., 621.
- Paquelin cautery in cutaneous affections, 878.
- Paramyoclonus multiplex, 1066.
- Paraplegia, spasmodic, 380.
- Patella, fractures of, 683, 684, 785.
- PATHE, J. F., M.D., observations on some rare diseases of the skin, rev., 650.
- PEDDIE, ALEX., M.D., Harveian oration, 1890, 1056, 1148.
- Pelvic viscera in the infant, 1168.
- Penis, hair-loop on, 761.
- Perineal fistula, treatment of, 91.
- Peritonitis, tubercular, successfully treated by abdominal section, 193; perforative, 583; in new-born infant, 865.
- Perityphlitis in children, 1176.
- Petrolia, Salvo, 1087.
- Phenacetin in whooping-cough, 568.
- PHILIP, R. W., M.A., M.D., occasional periscope of tuberculosis, 192, 1081.
- Phthisis, indigestion in, 192; treatment of pulmonary, by creosote, 192; curability of, 1081; prophylaxis of, 1082.
- Physicians, Royal College of, Edinburgh, 199, 301, 494, 685, 789, 1085.
- Physicians and Surgeons, Faculty of, Glasgow, 199, 494, 789, 1086.
- Pityriasis roses maculata, 1174.
- Placenta, the minute anatomy of the, in extra-uterine gestation, by D. Berry Hart, M.D., 344, 481.
- Pleurisy and pleuritic effusion from the anatomico-physiological standpoint, by Alex. James, M.D., 223.
- Pleuritic effusion, purulent, cases of, 158.
- Pneumonia, acute lobar, in children, 290, 1175; intra-uterine infection with, 493.
- POLLOCK, C. F., M.D., leprosy as a cause of blindness, rev., 561.
- Polypus, mucous, 769.
- PORTER, ALEXANDER, M.D., the diseases of the Madras famine, rev., 855.
- Post-partum shock, on a variety of, by J. Haig Ferguson, M.B., 33; discussion on, 83.
- Primula obconica, 568.
- Prostate, treatment of the hypertrophied, 295.
- Prostatic obstruction, the mechanism of, illustrated by a case of vesical tumour, by Albert Wilson, M.D., 1021.
- Provincial M.D., the departed age of blood-letting, 822.

Psoriasis, the parasitic origin of, 191; and eczema seborrhoeicum, 286; treatment of, by iodide of potassium, 487.

Pulmonary surgery, 688.

Pumiline, Stern's, 685.

Purpura and malignant growths, 285.

Pyæmia, puerperal, salicylic acid in, 781.

Pyrodin, 482.

R

Radius, congenital absence of the, 671, 865.

RAN, M. J., M.D., a practical treatise on eczema and its treatment, rev., 852.

Raspberry, yellow, infusions of, 871.

Rectum, case of congenital absence of the, by F. D. Boyd, M.D., 529; ballooning of the, 296; belladonna and cannabis indica used by the, 492.

Relapses, Senator on, 188.

Report, seventeenth annual, of Local Government Board, rev., 359; thirty-second annual, of the Registrar-General, rev., 457.

Resorcin in whooping-cough, 774, 973.

Retina, Schöler's operation for detached, followed by death, 581.

Reviews:—ALLINGHAM, H. W., F.R.C.S., the treatment of intestinal derangements by operation, 850; ASHBY, HENRY, M.D., notes on physiology, 61; BARRY, Dr, report on an epidemic of small-pox at Sheffield, 855; BENNETT, W. H., F.R.C.S., clinical lectures on varicose veins of the lower extremities, 654; BERNARD, A. S., M.R.C.S., on the causes, treatment, and cure of stammering, 855; BERRY, GEORGE A., M.B., diseases of the eye, 56; BLANDFORD, H. F., F.R.C.S., a practical guide to the climates and weather of India, Ceylon, and Burmah, and the storms of the Indian seas, 1164; BOWLEY, A. A., F.R.C.S., injuries and diseases of nerves and their treatment, 654; BRODHURST, BERNARD, the treatment of lateral curvature of the spine, 251; CATHCART, C. W., and F. M. CAIRD, a surgical handbook, 163; CHEYNE, W. WATSON, F.R.C.S., supuration and septic diseases, 852; CLIFFORD, EDWARD, Father Damien, 652; COBBAN, J. MACLAREN, master of his fate, 759; CORNET, Dr GEORG, über das verhalten der tuberkel-bacillen im thierischen organismus unter dem einfluss entwicklungshemmender stoffe, 57; die verbreitung der tuberkel-bacillen ausserhalb des körpers, 57; CREIGHTON, CHARLES, M.D., the natural history of cow-pox and vaccinal syphilis; "Vaccination," an article in the Encyclopædia Britannica; Jenner and vaccination, a strange chapter of medical history, 142, 249, 347, 656, 948; CULLINGWORTH, CHARLES J., M.D., a manual of nursing, 951; CUNNINGHAM, Prof. D. J., M.D., a manual of practical anatomy, 847; DAWES, W. H., the wife's help to Indian cookery, 758; DAY, WM. HENRY, M.D., headaches, their nature, cause, and treatment, 156; DUCKWORTH, Sir DYCE, M.D., a treatise on gout, 943; DYKES, J. EATON and DUDLEY STUART, manual of the public health acts, 856; ELLIS, T. S., the human foot, 653; ERNEST, F. GUSTAV, a guide

to the selection and adaptation of orthopaedic apparatus, 756; FELKIN, R. W., M.D., on the geographical distribution of some tropical diseases, and their relation to physical phenomena, 948; FENWICK, E. HURRY, the electric illumination of the bladder and urethra, 752; FIXLAYSAN, JAMES, M.D., account of the life and work of Maister Peter Lowe, the founder of the Faculty of Physicians and Surgeons, 562; FOY, GEORGE, F.R.C.S., anæsthetics, ancient and modern, 952; GARRIGOU, DESMARÈS, Dr, du cataracte chronique hypertrophique et atrophique des fosses nasales, 553; GAY, GEORGE W., M.D., the comparative merits of tracheotomy and intubation in the treatment of croup, 553; GOODALL, Prof. W., lessons in gynecology, 754; GORHAM, JOHN, M.R.C.S., tooth extraction, 452; GOUVERNHEIM, A., et PAUL TINSER, phthisie laryngée, 564; GURLEA, Dr G., nouvelle méthode de traitement de la diphthérie, 552; HAMILTON, Prof. D. J., a text-book of pathology, 556; HANFORD, H., M.D., graphic clinical chart, 157; HARR, H. A., M.D., the pathology, clinical history, and diagnosis of affections of the mediastinum other than those of the heart and aorta, 558; HEWITT, FREDERICK, M.A., M.D., select methods in the administration of nitrous oxide and ether, 357; HUMPHREY, LAURENCE, M.A., M.B., a manual of nursing, 961; HUTCHINSON, JONATHAN, LL.D., archives of surgery, 154, 559; HUTCHINSON, J., jr., aids to ophthalmic medicine, 563; HYDE, SAMUEL, L.R.C.P., Buxton, its baths and climate, 759; JAMES, B. W., M.D., American resorts, with notes upon their climate, 857; JAMES, PROSSER, M.D., the therapeutics of the Kronenquelle water, 156; a guide to the alterations in the British pharmacopœia (1885), 755; JENNINGS, C. E., F.R.C.S., cancer and its complications, 557; JOHNSON, GEORGE, M.D., an essay on asphyxia, 1064; JONES, JOSEPH, M.D., medical and surgical memoirs, 949; KEATING, J. M., ophthalmia of the diseases of children, 560; KEITH, SKENE, M.B., introduction to the treatment of disease by galvanism, 653; KERR, NORMAN, M.D., inebriety, its etiology, pathology, treatment, and jurisprudence, 757; KERRY, RUSTOMJEE NASSERWANJEE, M.D., the Bombay materia medica and their therapeutics, 155; LAFFAN, T., M.C.P.I., the medical profession of the three kingdoms in 1887, 750; LAVAUX, J. M., lavage de la vessie sans sonde, 259; LEDER, Prof. JOSEPH, an elementary treatise on human anatomy, 847; LOCKWOOD, C. B., F.R.C.S., Hunterian lectures on morbid anatomy, pathology and treatment of hernia, 849; L'OEUVRE, Mrs., the treatment of female inebriety in the cultured classes, 758; MACALISTER, Prof. A., M.D., a text-book of human anatomy, 847; MACFARLANE, A. W., M.D., insomnia and its therapeutics, 1162; M'KENDRICK, Prof. J. G., M.D., text-book of physiology, 649; M'LACHLAN, JOHN, M.D., applied

- anatomy, surgical, medical, operative, 451; M'LAGAN, T. J., M.D., fever, a clinical study, 151; MACHAMARA, C. N., leprosy a communicable disease, 651; MADDOX, E. E., M.B., the clinical use of prisms, 652; MAPOTHER, E. D., M.D., papers on dermatology, 450; MILTON, J. L., on the pathology and treatment of diseases of the skin, 1062; MONEY, ANGEL, M.D., the student's text-book of the practice of medicine, 62; MOORE, NORMAN, M.D., pathological anatomy of disease, 1163; MORGAN, A. KINNEY, M.B.C.S., Bournemouth as a health resort, 63; MUIR, THOMAS, M.A., Watt's dictionary of chemistry, 757; MURRELL, WILLIAM, M.D., masso-therapeutics, 155; OSLER, WM., M.D., the cerebral palsies of children, 452; PAGE, R. O. M., M.D., a handbook of the physical diagnosis of diseases of the organs of respiration and heart, and of aortic aneurism, 149; PAYNE, J. F., M.D., observations on some rare diseases of the skin, 650; POLLOCK, C. F., M.D., leprosy as a cause of blindness, 561; PORTER, ALEXANDER, M.D., the diseases of the Madras famine, 855; RAE, M. J., M.D., a practical treatise on eczema and its treatment, 852; RICHARDSON, B. W., the Asclepiad, 358; RIDGAL, SAMUEL, D.Sc., practical organic chemistry, 757; RIVINGTON, W., M.B., the medical profession of the United Kingdom, 750; ROBINSON, W., cremation and urn-burial, 1164; ROBSON, A. W. MAYO, F.R.C.S., a guide to the instruments and appliances required in various operations, 156; ROTH, BERNARD, the treatment of lateral curvature of the spine, 256; the treatment of flat foot, 756; SAJOUS, CHARLES E., annual of the universal medical sciences, 150; SCHENKE, EMIL, M.D., diabetes, 61; SCHOFIELD, ALFRED, M.D., health at home tracts, 758; SCHULKE, Prof. B. S., the pathology and treatment of displacement of the uterus, 559; SEXTON, A. HUMBOLDT, elementary inorganic chemistry, 1163; SHORMAKER, JOHN V., M.D., a treatise on materia medica, pharmacology, and therapeutics, 1064; SMITH, NOBLE, F.R.C.S., curvatures of the spine, 258; SPENDER, JOHN KENT, M.D., the early symptoms and early treatment of osteoarthritis, with special reference to the Bath mineral waters, 356; STARR, LOUIS, M.D., hygiene of the nursery, 552; STRACHAN, JOHN, M.D., the diagnosis and treatment of extra-uterine pregnancy, 448; STRACKE, C. N., the primitive family, 655; STRUTHERS, JOHN, M.D., references to papers in anatomy, 560; memoir on the anatomy of the humpback whale, 561; STYRAF, JUKES DE, M.K.Q.C.P., the young practitioner, 854; TAIT, LAWSON, F.R.C.S., lectures on ectopic pregnancy and pelvic hæmatocoele, 448; diseases of women and abdominal surgery, 945; THURSTON, E. PAGET, M.D., the Canaries for consumptives, 452; TIBBITTS, HERBERT, M.D., massage and allied methods of treatment, 357; TOOTH, H. H., M.D., the Gulstonian lectures on secondary degenerations of the spinal cord, 560; WARREN, Rev. ISAAC, M.A., table book, 157; WHITE, W. HALE, M.D., a text-book of general therapeutics, 755; WILKS, S., and W. NIXON, lectures on pathological anatomy, 1063; WILLIAMS, R. P., M.A., an introduction to chemical sciences, 757; WRIGHT, H. P., M.A., leprosy an imperial danger, 60.
- Reviews:—Anæsthetics, debate on, 544; annual, medical and practitioner's index (1889), 63, (1890), 1065; asylum reports, Royal Edinburgh, 453, Crichton Royal, 453, Derbyshire County, 453, Cumberland and Westmoreland, 453, Newcastle-upon-Tyne, 453; atlas of illustrations of pathology (Sydenham Society), 259; Bernd's physician's registers, 63; book-keeping, medical, 857; drunkards, habitual, 857; Kemp & Co.'s prescriber's pharmacopœia of new drugs, 756; Lippincott's magazine, 1065; report, seventeenth annual, of the Local Government Board, with supplement, 359; thirty-second annual, of the Registrar-General, 457; Scots Observer, 1165; year-book of treatment for 1890, 857.
- Rhythmical swaying movements, case of, in infant, 1072.
- Rice-bodies, formation of, in sheaths, tendons, and joints, 399.
- RICHARDSON, B. W., the Asclepiad, rev., 358.
- Rickets simulating pseudo-hypertrophic paralysis, 858; intra-uterine, by J. W. Ballantyne, M.D., 1111.
- RIGOOD, obituary notice, 569.
- RIDGAL, SAMUEL, D.Sc., practical organic chemistry, rev., 757.
- Ringworm of the scalp, treatment of, 487.
- RIVINGTON, W., M.B., the medical profession of the United Kingdom, rev., 750.
- ROBINSON, W., cremation and urn-burial, rev., 1164.
- ROBSON, A. W. MAYO, F.R.C.S., a guide to the instruments and appliances required in various operations, rev., 156.
- ROSS, J. MAXWELL, periscope of laryngology and rhinology, 486.
- ROTH, BERNARD, the treatment of lateral curvature of the spine, rev., 256; the treatment of flat-foot, rev., 756.
- S
- SAJOUS, CHARLES E., M.D., annual of the universal medical sciences, rev., 150.
- Salicylic acid, 973.
- Salol, the antiseptics of the renal passages by the internal use of, 1080.
- Sand filtration, efficacy of, 1084.
- Saundby, Dr. German compliment to, 886.
- Scabies, the anatomy of, 285.
- Scald of upper air passages from inhaling steam, 489.
- Scalp wounds, 299.
- Scandinavian studies, by John Boyd, M.D., 230.
- Scarlet fever, eucalyptus in, 873.
- SCHENKE, EMIL, M.D., diabetes, rev., 61.
- SCHOFIELD, ALFRED, M.D., health at home tracts, rev., 758.

Schools, medical, of Scotland, 376.

SCHULTZE, Prof. B. S., the pathology and treatment of displacement of the uterus, *rev.*, 559.

Sea-sickness, bromides in, 571.

Seborrhoeic processes, the relation of the, to some other affections of the skin, 286.

Senn's bone plates, 783.

Sepsis, does the occurrence of civilisation render the increase of, more common? by R. W. Felkin, M.D., 113, 174.

Serratus magnus, case of paralysis of, 275.

SEXTON, A. HUMBOLDT, F.R.S.E., elementary inorganic chemistry, *rev.*, 1163.

SHORMAKER, JOHN V., M.D., a treatise on materia medica, pharmacology, and therapeutics, *rev.*, 1064.

Shortsightedness and school hygiene, 1085.

Shoulder, two cases of unreduced dislocation of, by John Shaw M'Laren, M.A., M.B., 14.

Skin-grafting with dog-skin, 858.

Skin, transplantation of strips of, 271, 298; treatment of diseases of, by chloride of hydroxylamin, 486.

Skull, case of fracture of base of, 158.

SMITH, JOHN, M.D., valedictory address to the Edinburgh Medico-Chirurgical Society, 608.

SMITH, NOBLE, F.R.C.S. Ed., curvatures of the spine, *rev.*, 258.

Snow-blindness, 234.

Soaps, particularly medicinal ones, 487, 572. Society, Meetings of Carlisle Medical, 369, 869.

Society, Meetings of Medico-Chirurgical, of Edinburgh.—*Session* lxxviii.—*Meeting* vi. Discussion on the question of the necessity for further legislation for the care of habitual drunkards (*continued*), 64.

Meeting vii.—Exhibition of patients by Dr W. A. Finlay, Mr A. G. Miller, and Dr James Carmichael; exhibition of specimens by Mr A. G. Miller and Mr Cathcart; discussion on Dr Foulis's paper on raising the tongue, etc., 157.

Meeting viii.—Exhibition of patient by Dr Caverhill; discussion on the pathology and treatment of strumous glands, 164, 260.

Meeting ix.—Death of Professor Donders of Utrecht; exhibition of patient and drawings by F. M. Caird; discussion on Dr Alex. James's paper on the pathological physiology of pleurisy and pleuritic effusion, 271.

Meeting x.—Exhibition of patients by A. G. Miller and F. M. Caird; exhibition of pathological specimen by Dr Argyll Robertson; discussion on Professor Chiene's hospital experiences, 275.

Meeting xi.—Election of member; exhibition of patients by Prof. G. Stewart, Dr Allan Jamieson, Mr A. G. Miller, and Dr S. Lang; exhibition of specimens by Dr Maxwell Ross and Dr A. Bruce; discussion on Dr G. A. Gibson's paper on Cheyne-Stokes respiration; discussion on Dr Albert Morison's paper on the surgical treatment of empyema, 360.

Meeting xii.—Discussion on intestinal obstruction, by Mr A. G. Miller, and Drs

Duncan, Affleck, Cathcart, Russell, James Young, Wallace, Kennedy, Caird, Stiles, and Scott Lang, 460.

Meeting xiii.—Election of new members; exhibition of patient by Mr F. M. Caird; exhibition of pathological specimens by Dr Maxwell Ross and Dr Harvey Littlejohn; discussion on Dr D. Berry Hart's paper on the minute anatomy of the placenta in extra-uterine gestation, 479.

Session lxxix.—*Meeting* i.—Election of office-bearers; exhibition of patients by Dr Felkin, Prof. Grainger Stewart, and Dr Byrom Bramwell; exhibition of specimens by Drs Byrom Bramwell, James Carmichael, Shaw M'Laren, and John Thomson; retiring address by the president, 668.

Meeting ii.—Election of members; exhibition of patient by Dr John Thomson; exhibition of specimens by Drs Kennedy, Troup, and James Ritchie; discussion on Dr Leslie's paper on the cure of facial neuralgia, odontalgia, and allied neuroses; discussion on Mr F. M. Caird's paper on the treatment of gangrenous bowel in strangulated hernia, 760.

Meeting iii.—Election of new members; exhibition of patients by Drs Kennedy, Miles, and J. Thomson; discussions on Dr Wallace's paper on the electric cystoscope, on Dr Horsley's paper on cyst of the posterior extremity of the inferior turbinate body, and on Dr Oroom's paper on the technique of laparotomy from an analysis of two hundred cases, 858.

Meeting iv.—Exhibition of specimens by Dr Wm. Russell and Dr Alex. Bruce; discussion on Dr Scott Lang's paper on the lateral curvature of the spine; discussion on Dr James Ritchie's notes of a case of carcinoma of the supra-renal capsules and lungs, 960.

Meeting v.—Exhibition of patients by Professor Grainger Stewart, Mr C. W. Cathcart, Mr A. G. Miller, and Professor Annandale; exhibition of instrument by Dr Gulland; exhibition of pathological specimens by Professor Grainger Stewart; discussion on Dr K. M. Douglas's paper on fatty hernia; Mr A. G. Miller's paper on a case of intestinal obstruction successfully treated by laparotomy; discussion on Mr C. W. Cathcart's paper on the place of systematic lectures in the teaching of medicine and surgery, 1066.

Society, Meetings of Edinburgh Obstetrical.

—*Session* l.—*Meeting* vi.—Exhibition of specimens, etc., by Dr Brewis and Dr Milne Murray; discussion on Dr Haig Ferguson's paper on a variety of post-partum shock; discussion on Dr Berry Hart's paper on mitral stenosis in labour, 82.

Meeting vii.—Discussion on Dr Felkin's paper, does the increase of civilisation render the occurrence of sepsis more common? 174.

Meeting viii.—Exhibition of specimens by Dr Brewis; discussion on Dr W. Fraser Wright's case of heart disease complicating

labour treated successfully by nitrite of amyl; Dr Underhill's cases of intra-uterine hydrocephalus; Dr Allan Sym's remarks on injury to fetal neck through pressure of umbilical cord; and note on a case of annular hymen, 278.

Session II.—Meeting i.—The president's valedictory address; discussion on Dr Haultain's paper on exfoliation of the bladder, 672.

Meeting ii.—Exhibition of specimens by Prof. Simpson, Drs Underhill and Brewis; discussion on Dr Mackness's case of heart disease complicating pregnancy and labour, and case of hydrocephalus with meningocele, and Dr J. W. Ballantyne's paper on intra-uterine rickets, 768.

Meeting iii.—Exhibition of patient by Dr John Thomson; exhibition of specimens by Dr J. W. Ballantyne; Dr Fraser Wright on gynaecological cases treated by electricity in Prof. Simpson's clinique, 885.

Meeting iv.—Exhibition of specimens by Drs J. D. Williams, J. W. Ballantyne, and F. W. N. Haultain; discussion on Dr J. C. Webster's paper on the disposition of the pubic segment in pregnancy and labour; paper by Dr J. W. Ballantyne on the head of the infant at birth, 963.

Meeting v.—Exhibition of patient by Dr John Thomson; exhibition of specimens, implements, etc., by Prof. A. R. Simpson, Drs M'Vie, Fraser Wright, Brewis, Berry Hart, Barbour, and Milne Murray; discussion on Drs Fraser Wright and Milne Murray's papers on the treatment of pelvic diseases by electricity; quarterly report of the Royal Maternity Hospital, by Dr Alex. Keiller, jun., and Dr W. G. Aitchison Robertson, 1072.

Meeting vi.—Exhibition of specimens by Drs Ballantyne and Brewis; discussion on Dr Brewis's case of myomectomy for a large fibro-cystic tumour of the uterus; on Dr W. M. Campbell's note upon conception with unruptured hymen; and Dr Ballantyne's paper on the relations of the pelvic viscera in the infant, 1168.

Society, Royal Medical, 177, 281, 564, 678, 867, 966.

Sodium dithionalsulphate, 676.

Solanum carolinense in epilepsy, 870.

Somnal, a new hypnotic, 772.

SPENDER, JOHN KENT, M.D., the early symptoms and early treatment of osteoarthritis, with special reference to the Bath mineral waters, rev., 356.

Spina bifida, 883.

Spine, lateral curvature of, 960; surgery of the, 297, 882.

STARR, LOUIS, M.D., hygiene of the nursery, rev., 552.

Stern's preparations of pumiline, 685.

Stomach washing in infants, 291; carcinoma of, 960.

STRACHAN, JOHN, M.D., the diagnosis and treatment of extra-uterine pregnancy, rev., 448.

STRACHE, C. N., the primitive family, rev., 656.

STRUTHERS, JOHN, M.D., references to papers in anatomy, rev., 560; memoir on the anatomy of the humpback whale, rev., 561.

STRAP, JUKES DE, M.K.Q.C.P., the young practitioner, rev., 854.

Sulphonal as a hypnotic in insanity, 568.

Sulphur dioxide, disinfection of dwellings by, 788.

Supra-renal capsules, carcinoma of, 963.

Surgeons, Royal College of, Edinburgh, 199, 301, 494, 587, 789, 1086, 1178.

Surgical periscope, by A. G. Miller, F.R.C.S., 194, 295, 583, 682, 782, 882; by E. G. Bull, M.B., 396.

Suspension in tabes dorsalis, 186, 689.

Sutures, 596; buried, 583.

Sycosis, 191, 880.

SYM, WM. GIBSON, M.D., diphtheritic paralysis of accommodation, 411.

Syphilis, the rational treatment of primary, by Albert Wilson, M.D., 318; intracranial, 90; outbreak of, following tattooing, 91; vaccinal, 895.

Syphilitic cephalalgia, varieties of, 486; late, roseola, 579; pathological specimens, 1068; reinfection, 782.

Syphilology and genito-urinary diseases, periscopes of, by Francis Cadell, F.R.C.S., 80, 394, 974.

T

TAIT, Prof. LAWSON, the pathological importance of the broad ligaments, 1, 97; the surgery of the liver, 305, 401; lectures on ectopic pregnancy and pelvic hæmatocele, rev., 448; diseases of women and abdominal surgery, rev., 945.

Talipes varus, removal of astragalus for, 683.

Tenorrhaphy, 682.

Testicles of animals, subcutaneous injections of a liquid obtained from the, 394, 975.

Tetanus, treatment of traumatic, 197; infectious, 898, 782.

Tetany, 1176.

Theatre, an ideal operating, 844.

Theobromine, the diuretic action of, 1079.

Therapeutics, monthly report on progress of, by Wm. Craig, M.D., 181, 392, 566, 676, 772, 870, 1079.

Thiol, 575.

THOMSON, Dr ALEXANDER, obituary notice, 899.

Thumb, lateral dislocation of ungual phalanx of the, 198.

THURSTON, E. PAGET, M.D., the Canaries for consumptives, rev., 452.

Thyroid, enucleation of diseased portions of, 786; Kocher on extirpation of, 884.

TRENTS, HERBERT, M.D., massage and allied methods of treatment, rev., 357.

Tibia, congenital absence of, 671.

Tinea tonsurans, treatment of, 881.

Tongue, on the only way of raising the, the epiglottis, and the aryteno-epiglottic folds at one and the same time, by James Foulis, M.D., 19, 132; pre-cancerous conditions of the, 299; artificial, 785.

TOOTH, H. H., M.D., the Galstonian lectures on secondary degenerations of the spinal cord, rev., 560.

TRAIL, JOHN, F.R.C.S., obituary notice, 95.

Trichorrexia nodosa, 487.

Trophoneuroses, acute, of the insane, 236.

Tropics, occasional periscope of diseases of the, by R. W. Felkin, M.D., 678.

Tzour, Francis, M.D., medical periscope, 85, 183, 482, 874, 968.

Tubercle, mortality among nurses from, 786.

Tuberculosis, occasional periscope of, by R. W. Philip, M.A., M.D., 192, 1081; congenital, 192; pathology of joint and bone, 193; giant cutaneous, spreading serpiginaously, 578; prophylaxis of, 1085.

Turbinate body, cyst of the posterior extremity of the inferior, by Reginald Horsley, M.B., 631, 860.

Turnbull, M. J., M.D., J.P., 685.

Typhoid bacillus, 86.

U

Ulerythema ophryogenes, 189.

Umbilical cord, pressure of, on fetal neck, 280; convulsions of, 768.

UNDERHILL, C. E., M.B., some cases of intra-uterine hydrocephalus, 218; occasional periscope of diseases of children, 290, 1174; address to Edinburgh Obstetrical Society, 738, 831.

University of Edinburgh, 300.

Unna, some selected recipes of, 1170.

Ural, a new hypnotic, 181.

Urethritis, can, be considered a specific disease? 974.

Uterus, extirpation of, 86; ventral fixation of the retroflected, 492; retroversion and retroflexion of gravid, by J. Halliday Croome, 905; bicornis septus, 1186.

V

Vaccination, 142, 249, 347, 656, 953.

Varicose veins, 363, 684.

Venous trunks, hæmorrhage from, 783.

Vulva, syphiloma of the, 776.

W

WALLACE, DAVID, F.R.C.S., operation to reach the gustatory and inferior dental nerves without opening into the mouth, 238; the electric cystoscope, 712, 860.

Wallich's inhaler, 1179.

WARREN, Rev. ISAAC, M.A., table-book, rev., 157.

Warts, confluent, affecting both legs, 284.

WHITE, W. HALL, M.D., a text-book of general therapeutics, rev., 755.

Whooping-cough, treatment of, by quinine, 292; nocturnal paroxysms in, by C. C. Burman, L.R.C.P. and S.E., 523; phenacetin in, 568; resorcin in, 774; bromoform in, 870.

Wilcox & Co.'s new medicines, 303.

WILKS, SAMUEL, and W. MOXON, lectures on pathological anatomy, rev., 1063.

WILLIAMS, R. P., A.M., an introduction to chemical science, rev., 757.

WILSON, ALBERT, M.D., the rational treatment of primary syphilis, 318; the mechanism of prostatic obstruction illustrated by a case of vesical tumour, 1021.

WOODHEAD, G. SIMS, M.D., and G. E. CARTWRIGHT WOOD, M.D., the physiology of the cell considered in relation to its pathology, 936, 1036, 1148.

WRIGHT, H. P., M.A., leprosy an imperial danger, rev., 60.

WRIGHT, W. FRASER, M.B., case of heart disease complicating labour treated successfully by nitrite of amyl, 278, 540.

Y

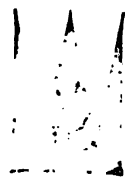
Year-book of treatment for 1890, rev., 857.

Z

Zoster, traumatic paradoxal, 485; zoster, 580; extension of herpes, along the arteries of the skin, 679.

END OF THIRTY-FIFTH VOLUME.

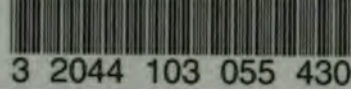




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